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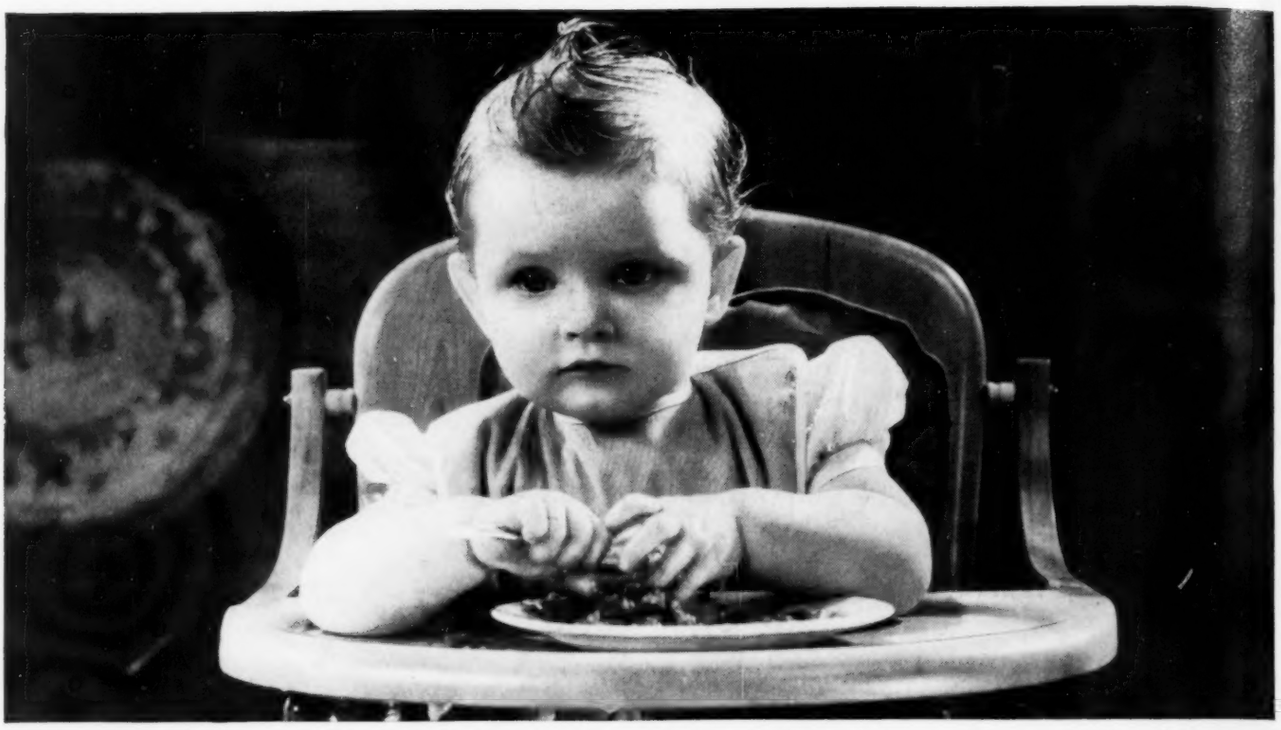
THE HEALTH MAGAZINE

HYGEIA

OCT 30

TRAVEL in the TROPICS

NOVEMBER · 1940 · 25c



Playing with food is an exasperating habit that babies get into when appetite lags or the food itself has little appeal. But some mothers have very little trouble of this kind. Many mothers tell us that their babies "took to" Clapp's with a will from the first day of spoon-feeding. Cooked fresh from gardens near the Clapp kitchens, and carefully salted according to doctors' directions, Clapp's vegetables have pleasant natural flavors. And babies, like everybody else, like to get their vitamins and minerals in something that tastes good.

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17 STRAINED FOODS FOR BABIES

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14 JUNIOR FOODS FOR TODDLERS

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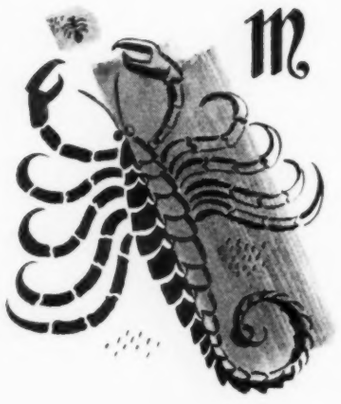

FORECAST

Rheumatic fever and rheumatic heart disease are among the most important and difficult problems facing medicine today, say Doctors Joseph Harvey and George Schwartz. Unlike scarlet fever and diphtheria, rheumatism is not a reportable disease and its prevalence is not easily determinable. But experience shows that it is a more serious disease than either tuberculosis or syphilis.

According to the authors, the organisms producing rheumatic fever and rheumatic heart disease are present in all normal throats and the barrier between sickness and health is so thin as to be almost imperceptible.

History's most ambitious plan to save the lives of wounded soldiers has just been announced by the American Red Cross. Volunteer blood donors have been mobilized in New York City to take part in an emergency project, designed to furnish thousands of liters of blood plasma solution to the British Red Cross for the treatment of war victims.

James N. Miller discusses the purpose of this giant blood "bank" and what it means to the world at large.

Leon Felderman presents an interesting, historical article on the facts, fallacies and fantasies of the problems relating to the ear, nose and throat. Some persons, he says, suffer from suppressed desires to offer advice. And whether the subject deals with a prize fight, a horse race or an illness, they have ready-made opinions, predicated either on fantasies and fallacies, but seldom on facts.

Emmerson G. Wulling analyzes the growth of the modern drug store in its relation to the pharmacist. Mystery and glamor hovered about the old apothecary's shop; the proprietor was a man of parts, a man with a lore of magic, it seemed. Those shops have vanished; in their place are drug stores. Read what is happening to this ancient profession.

HYGEIA

THE HEALTH MAGAZINE

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CONTENTS FOR NOVEMBER

COVER ..... Floyd Arpan

SUPERIOR INTELLECTUAL ABILITY IN CHILDREN — An Editorial 953

TRAVEL IN THE TROPICS ..... Z. Bercovitz, M.D. 954

THEY SHOW US MIRACLES ..... Pauline Rosenberg 958

DUCTLESS GLANDS ..... August A. Werner, M.D. 961

AVIATION MEDICINE ..... Harry G. Armstrong 964

IS FOOTBALL DANGEROUS? ..... Alfred E. Parker 970

TEETH ..... Constance J. Foster 973

BROKEN BONES ..... Kellogg Speed, M.D. 977

ARTIFICIAL EARS AND NOSES ..... Arthur H. Bulbulian, D.D.S. 980

BRUCELLOSIS ..... S. M. Rabson, M.D. 983

WHERE SHEEP DRIFT BY — A Poem 987

IT WASN'T MY FAULT ..... Herbert L. Herschensohn, M.D. 988

FOODS AND NUTRITION

- Rice Products 993
- Fruit in the Diet ..... Doris W. McCray 996
- Toast ..... James A. Tobey 1001
- Avocadoes ..... Harriet Morgan Fyler 1006

VISITING THE SICK ..... Jack Gains 1008

QUESTIONS AND ANSWERS 1010

ONE IN EVERY TWENTY-FIVE ..... Dorothy Glazer 1016

CHILD CARE

- Listen, Dear Parents! ..... Eugene A. Conklin 1022

RADIO NEWS 1029

BOOKS ON HEALTH 1030

TEACHING HEALTH

- Suggested School Health Policies: III 1032

MEDICAL NEWS OF THE MONTH 1040

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Unsolicited manuscripts will be considered by the Editor but must be accompanied by a stamped self addressed envelop to insure return if rejected. Manuscripts should be typewritten, double-spaced, and the original, not the carbon copy submitted. All rights reserved.

A WELL SHAPED HEAD...A FINE FULL CHEST...A STRONG BACK

STRAIGHT LEGS...SOUND EVEN TEETH

...Give your baby the help he needs to build them!

His important first year! Your baby's head grows as much as it will the rest of his life. He'll sit up alone. Later, he will walk! How necessary to provide plenty of Vitamin D to help him build the *right kind* of head, back, chest, legs. Millions of mothers rely on Squibb Cod Liver Oil as a dependable source of Vitamin D. Give it to *your* baby every single day!

Triple his birth weight!...Your baby may weigh three times as much at the end of 12 months as at birth. But there are other signs to check. Is he sitting up erect? (Grown-up posture may depend on the framework he builds now.) Is his chest well-developed? Are his legs straight? To help build a good framework, give Squibb Cod Liver Oil as part of a well-balanced diet.

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Daily use important!...The sun gives baby less than one-fourth the Vitamin D in mid-winter as in early summer. He can't get much Vitamin D from sunshine when he's indoors. Cloudy weather, clothing shut out much of the sunlight. Food, alone, may not make up this vitamin loss. So many physicians advise giving baby Squibb Cod Liver Oil soon after birth.

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"The Adcomber"

looks at Hygeia ads

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—:—

Take note, late vacationists and holiday tourists. Effective November 1st, 2 grand and glorious weeks of luxurious, restful living at the Greenbrier Hotel, White Sulphur Springs, can be yours for surprisingly little. Write for information on special rates.

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The perfect Christmas gift for that hard-to-please aunt? Sun-ripened California fruit, of course. COFFY'S Deglet Noor Dates, the pick of the Palms, come in an attractive 5 pound box for only $2.00. Or for $3.00, there's a 10 pound box of Canoga Farms fruits, 10 assorted varieties.

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Don't take my word for it—see the new FLEX-SEAL pressure cooker demonstrated! Your whole meal is ready in minutes—and, unlike ordinary cooking, vitamins and minerals are not destroyed in the process. FLEX SEAL cuts down fuel bills, too. Free circular on request.

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Now, that Molasses has won a place among rich-in-iron foods—what about new ways to serve it. Well, the Brer Rabbit folks have compiled a cook book featuring a 101 molasses recipe suggestions for the Modern Hostess. There's a copy for you!

—:—

Say goodbye to hot, dry air this winter! Get air-minded and humidify your house. The new *Thrift* model Walton Humidifier is a beauty! It comes in a handsome pottery urn—yet costs only $24.95.

—:—

"How to Guard and Enhance Your Beauty"—isn't that what every woman wants to know? Then be sure you send to Marcelle Cosmetics for that intriguing free folder and helpful make-up chart. For samples galore, include 10 cents.

—:—

A most ingenious device is that Fenwal Hot Water Bottle Heater. Plug it in the bottle, connect it to a socket and the water in the bottle keeps hot indefinitely. Even temperature, too!

—:—

How do you measure up as a mother? Full information on a successful plan for child guidance, showing you how you can have the advice of experts, is offered in the free Childcraft Booklet. It's yours without obligation.

—:—

What strange connection is there between "Tuberculosis and Genius"? Dr. Louis Moorman's book by this name includes revealing biographies of 10 outstanding writers—victims of tuberculosis.

—:—

THE ADCOMBER.

See advertising index for page references

Who's Who IN HYGEIA

KELLOGG SPEED, M.D., author of "Broken Bones," page 977, was born in Cleveland, Ohio, and graduated from the University of Chicago in 1901. He was given his M.D. at Rush Medical College, and continued his medical studies under Sir Robert Jones, Liverpool, England and in Leipzig, Germany.

Dr. Speed is Chairman of the Fracture Committee of the American Medical Association, a member of the American Surgical Association, Professor of Surgery, Rush Medical College, and a recent president of the American Association for the Surgery of Trauma.

In his senior year at the University of Chicago, Dr. Speed was football captain.

ZACHARIAS BERCOVITZ, M.D., author of "Travel in the Tropics," page 954, is a graduate of the University of Chicago and received his B.S., M.S. and Ph.D. from that institution. Soon after obtaining his M.D. from Rush Medical College, he accepted an assignment in the Orient and spent 10 years as a missionary physician under the Presbyterian Board of Foreign Missions. He was first sent to Korea (Chosen) but has since had extensive work and experience in Japan. During the period of his stay in Japan, Dr. Bercovitz became interested in the problems of travelers in foreign countries because he realized that with the application of a little common sense, coupled with a generous supply of a good sense of humor, it is possible for the average person to get along without much difficulty. After service in the mission field, he attended the London School of Tropical Medicine, returning to New York in 1934. His practice and teachings have been confined largely to the field of tropical medicine.

Dr. Bercovitz is, at present, Assistant Clinical Professor of Medicine at the New York Post-Graduate Medical School, Columbia University, and has, for the last two years, given a series of lectures on tropical medicine at the DeLamar Institute, also at Columbia University.

His chief hobby is photography, including both motion pictures and stills. He is, however, particularly interested in color photomicrography.

ALFRED E. PARKER started writing for HYGEIA in 1928 and has been in our Author's circle more or less regularly ever since. He graduated from the University of California in 1922 and received his Master's degree 10 years later from the same University. His work, Instructor in Physical Education, Class B Basketball and Varsity Tennis coach at Berkeley High School, Berkeley, Calif., has given him an authoritative background for "Is Football Dangerous?", page 970.

In 1931 he returned to the University of California to study police administration under August Vollmer, an international authority. Beside his degree, that experience resulted in the writing of two books in collaboration with Vollmer.

Mr. Parker's hobbies include collecting old books on the subject of crime, and the "Itch," which apparently can never be satisfied, to keep on with his writing.

PAULINE ROSENBERG, author of "They Show Us Miracles," page 958, was born in Omaha, Neb.

There she received her initial formal education and, later, at the University of Michigan she was given both her Bachelor's and Master's degrees. She tried teaching for a short time, but soon turned to writing and editing. Her longest period of service was for seven years with Compton's Pictured Encyclopedia. After a period of several years, she returned to Compton's, where she is now listed as a staff editor. During her period of absence, she was editor of the Better Speech Institute of America and spent two of those years abroad. While in Palestine she worked on the Folia Medica Orientalia, a medical review published in Jerusalem in three languages: English, French and German.

HERBERT L. HERSCHENSOHN, M.D., is a native New Yorker, born in Brooklyn in 1902. He received his Bachelor's degree in 1923 from New York University and married soon afterward. He was awarded a Doctor's degree at Marquette University in 1927 and served his internship at the University's Hospital. He is author of many books, magazine articles and newspaper feature series. His article, "It Wasn't My Fault," appears on page 988.

Dr. Herschensohn's avocation and hobbies are widely divergent. He is founder and chairman of the Men's Club and the Milwaukee Parent-Teacher Association. His leisure time is divided, somewhat unevenly, between music, as an accomplished pianist, photography, as a proficient amateur in color stereoscopics and gardening.

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Upper respiratory passages

sensitive membranes. When this air is desert dry, the damaging effects are obvious. Adequate moisture is essential to healthy respiratory and nasal passages.

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Cross section of human skin showing at top the outer layer which must be kept soft and moist for maximum comfort.

The average adult has a skin surface of about twenty square feet. Under normal conditions of temperature and humidity it remains soft, pliable and comfortable. Exposed to excessive dryness, such as prevails in most homes during the winter months, the skin tends to dry and parch, leading to discomfort and actual itching.

ON HOT, DRY AIR

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LETTERS FROM *Readers*

Diaper Data

To the Editor:

I find the articles by Dr. William Fishbein very interesting, as a rule, but as a mother of three children I wish to protest violently. In his article, apparently intended to guide new mothers in their preparations for as well as the care of their babies, he makes the statement, "As a rule, 18 diapers, 24 inches square, will prove sufficient for the first two or three months of life. After that time, 18 diapers, 20 by 40 inches or 30 inches square, depending on the method of folding used, should prove sufficient."

When our first baby was 2 months old, I recorded the number of times his diapers had to be changed. At that age, the average was 22 times in twenty-four hours. Thus, even if the diapers are washed every day, 18 could not possibly be sufficient. While yesterday's diapers are being laundered and dried, a full day's supply is needed for today. Of course, babies may vary in this as in everything else, but if any normal infant, under 3 months of age, needs no more than 9 diapers in twenty-four hours, my guess is that he is being underfed.

I have known many mothers who have washed diapers daily, but not one uses less than 4 dozen diapers for one infant.

MRS. L. H. PHILLIPS
Bugo, Misamis Oriental, Philippines

» It is a fact that the frequency of wetting varies considerably in infants, according to Griffith and Mitchell's book. In the diseases of infants and children, the frequency may vary from 2 or 3 to 6 times in the first and second days of life. After this time, it may vary from 5 or 6 up to as much as 40 times in a twenty-four hour period.

Thus, on an average, 18 diapers should prove adequate. However, in unusual cases more diapers are needed. It must be remembered, also, that it is not wise to awaken the infant to change diapers. Thus, during the period from 10 p. m. to 6 a. m., when the infant is sleeping, no diaper changes are necessary.—ED.

Still on the List

To the Editor:

I became acquainted with HYGEIA while studying Biology, Physical education and related subjects in college. I have enjoyed your articles, ranging from entertainment to instruction. Soon after graduation, I selected a few magazines I desired to continue reading after college. I am glad to say that my name is still on HYGEIA's mailing list.

EMMA DOROTHEA BRAMWELL
Madison, Ind.

Hygeia Serves

To the Editor:

Two years ago I took a required high school course in hygiene, in which your magazine was extensively used. We discussed every phase of this subject, and HYGEIA became very popular and helpful to the group.

Personal and mental health, hobbies, and many other subjects so vital to everyday living, were discussed with great interest.

H. B. WOODWORTH
San Francisco, Calif.

Good Source

To the Editor:

In my class of Child Study at the Superior Vocational School, I find your magazine an important source from which we receive information. There are times when we need material for outside reading, and I invariably go to HYGEIA for that material.

EDNA H. LEVINE
Superior, Wis.

Next time you have a prescription filled— thank this patriot of 1776!

IT'S QUITE A STRETCH from the pharmacist behind the counter, who fills your prescription so quickly and expertly, to the grim, Revolutionary soldier above.

John Morgan was a distinguished physician and surgeon . . . a practical patriot . . . a friend of Washington. And he was a perfectionist.

To the volunteer medical corps of the little Continental Army, he strove to bring some of the discipline and organization which are found in that department of the U. S. Army today. His experience there convinced him that, for the best interests of medicine, prescriptions should be compounded by men who had made the science of drugs their lifework.

So John Morgan became a crusader, preaching the doctrine of pharmacy as a separate profession. And though he did not live to see his ambitions realized, he sowed the seed. Soon pharmacy became an important, specialized work in every community. And his name was given a place of honor in the history of American Pharmacy.

If General Morgan could enter a modern drugstore, its appearance would amaze him. But back of the prescription counter, he'd find the idea and the ideals for which he had fought.

Surrounded by an astonishing array of drugs . . . serums . . . chemicals, and precision equipment, he would come face to face with a man who is making pharmacy his lifework. A highly trained expert, whose study never ends. A man of many friends, who serves his community well. One who finds his greatest compensation in the fact that, every day of his life, he is helping the medical profession to combat illness, pain, and death.

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Superior Intellectual Ability

Homer Jensen

The handling of gifted children, according to Professor Terman, is made more difficult by their extreme versatility. It is necessary to guide their drive and intellect toward fields of specialization.

in Children

SCIENTISTS have a different concept of genius from that which the average person holds. As Professor Lewis M. Terman pointed out in the lecture recently published by *Science* the average person designates as genius some kind of mystical gift that cannot be explained by the ordinary laws of human nature. Some consider eminence, fame, or notoriety in any form as being the same as genius. The famous writer Samuel Johnson considered genius to be any one endowed with superior intellectual ability. That is the definition most commonly accepted by the psychologists today.

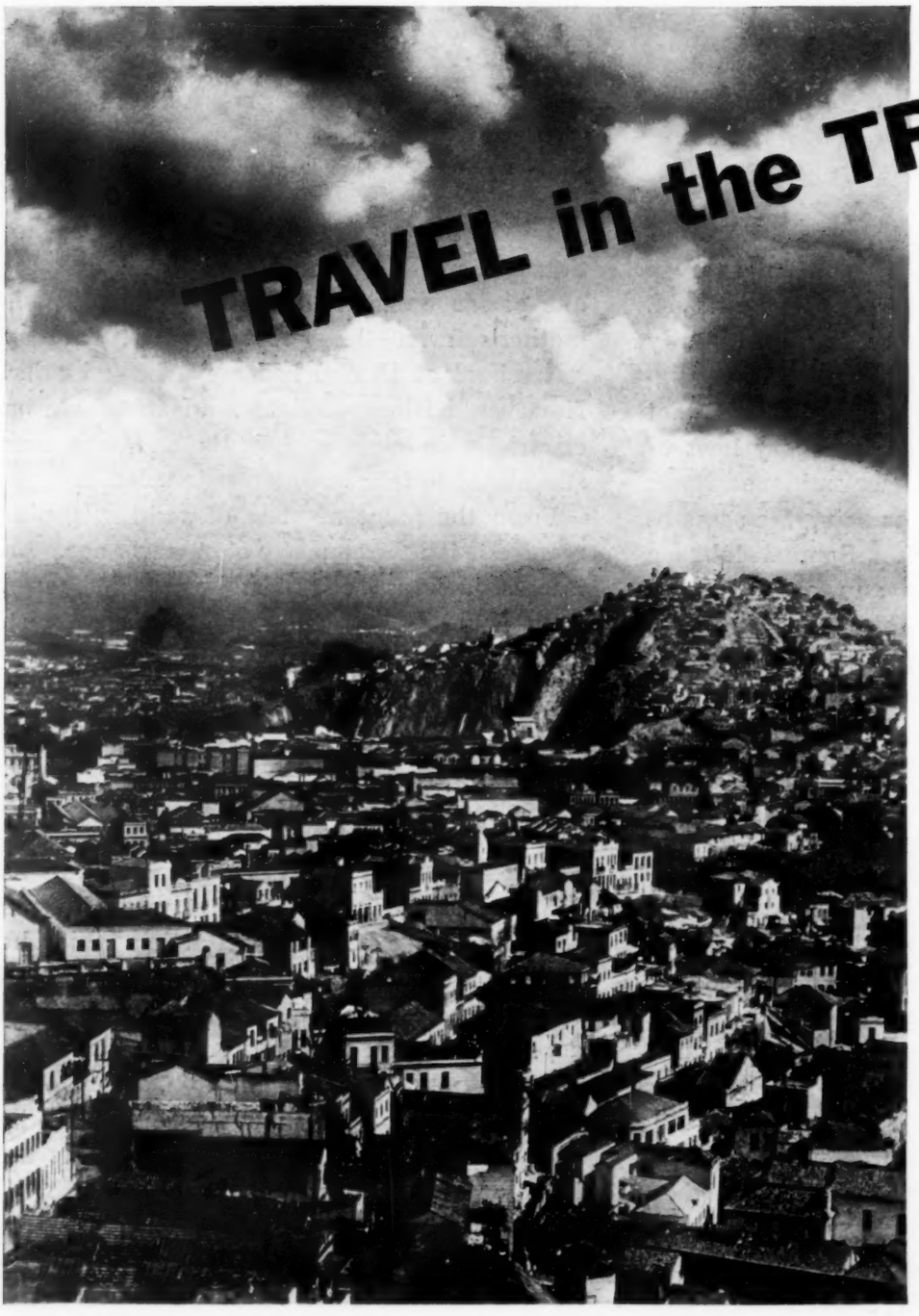
Perhaps all men are created equal, but every one now knows that some people can think faster and arrive more promptly at a logical conclusion than can others. At Stanford University for twenty years studies have been made to find out just why some three hundred eminent people became famous. Moreover, the intellectual development of more than 1,300 children who were found to be extraordinary for their ability to acquire knowledge and think satisfactorily has been followed for twenty years.

The studies of three hundred eminent people proved that the genius who achieves highest eminence is one whom intelligence tests would have identified in childhood as gifted. This does not mean that every one who is considered gifted in childhood later becomes eminent. Apparently achievement results not only from superior intellectual ability, but also from persistence of motive and effort, confidence in ability, and strength or force of character. There is also a part played in achievement by chance. Professor Terman is convinced that for a given type of achievement to be possible one must be born not too far from a given time and place. Other chance factors are also capable of shaping the life of a genius. For instance, the great physicist Newton, who is credited with the discovery of the law of gravity, would never have received the education that made possible his great discovery if one of his uncles had not come to visit his mother's farm. The great physicist Faraday left school at 13 and became a book binder. However, he happened to read an article on electricity in an encyclopedia and was thus stimulated to take an interest in science.

From the point of view of writing, genius manifests itself frequently at an early age. An interest in science may also be revealed early. John Hunter, British surgeon and anatomist, left school at 13 and spent what were apparently four idle years roaming the woods and fields studying ants, birds, bees, and all sorts of insects, and thus gave himself a real groundwork in biology. Benjamin Franklin, before the age of 17, had shown all of the personality traits that characterized him in middle life. It is actually true of him that when he was 70 years of age he found an article which he had written when he was in his teens, published it practically without change and created a political sensation.

The handling of gifted children, according to Professor Terman is made more difficult by their versatility. It is necessary to guide the drive and the intellect into specialization.

Among the factors, besides intellect, for determining achievement among gifted children sex is significant. Although women equal or excel men in achievement in school from first grade through college, most women cease to compete with men in the world's work after school days are over. Professor Terman is inclined to predict that out of the 1,300 especially gifted children whom he studied not more than 40 will attain national reputation, and that not more than a dozen will become really eminent. This is a demonstration of his conviction that there are many other factors associated with eminence and success besides ability to acquire knowledge or superior intellectual ability.



TRAVEL in the TROPICS

By
ZACHARIAS
BERCOVITZ

EACH YEAR, thousands of Americans travel through tropical countries; sometimes for business, often for pleasure. But their travels need not be marred by fear of health dangers if they will apply a few simple measures of personal hygiene. A sense of humor is often necessary in becoming acclimated to living conditions in the tropics, but common sense and a knowledge of the important factors in the transmission of disease is essential.

Highly important is a thorough physical examination. If abnormalities exist, they should be rectified as much as possible before beginning the trip. Generally, persons with chronic diseases are not able to withstand the strains of living or traveling in the tropics. This is especially true if the nature of their journey involves strenuous trips into the less inhabited portions of the country.

Since physicians who have lived and worked in the tropics have thorough knowledge of local conditions, their advice and experience is extremely valuable. Immunizing injections for various diseases such as smallpox, yellow fever, typhoid, paratyphoid, and for children

diphtheria and scarlet fever, should be administered at the time of the physical examination. Prophylactic injections, it must be remembered, will serve only as a protection against incidental infection but cannot always be effective in all cases of exposure to disease. Local physicians can be relied upon to prescribe the necessary preventive treatments for plague or cholera, should they exist.

Human infestation with intestinal parasitic diseases is incurred by swallowing the cysts or ova of these parasites. They enter the body through the digestive tract, either in food, water, or from contaminated, inedible objects. Food may be contaminated by flies which feed on infected substances and then transmit the disease-producing organism to food. This food then becomes the source of disease. Food may also be contaminated when it is handled by persons with dirty hands. This source of infection is particularly prevalent in tropical countries and in outlying districts where sanitation is poor and where contaminated dust particles may easily infect foodstuffs. Hands may easily be contaminated by touching unwashed fruits and vegetables, imported from areas where dysentery and other diseases are common, or by handling money and other objects exposed to the dust and dirt of the streets.

Extreme care should be taken to wash the hands before handling or eating food. Use soap and water and a clean towel to dry the hands. A 50 per cent solution of alcohol or a solution of an appropriate antiseptic, recommended by the physician, afford greater safety. When this procedure is used, allow the hands to dry by evaporation before handling or eating food. Contamination of food may also occur by water, especially if it comes from surface streams draining polluted areas.

Fruits and vegetables with unbroken skins are usually uncontaminated. The outside skins may be infested with parasites but, if the skin is intact, they may be safely eaten if carefully washed with soap and water or with alcohol before the skin is removed. Bananas should be eaten "monkey-fashion"; the skin

Food is often contaminated when it is handled by persons with dirty hands. This source of infection is extremely prevalent in outlying districts where sanitation is poor.

peeled away carefully so that the pulp of the fruit is not touched.

All other fruits and vegetables should be dipped in boiling water for thirty seconds. This is sufficient to kill all forms of disease-producing organisms if the water is kept boiling while the food is being dipped. Some fruits and vegetables will become discolored but this does not usually affect their flavor. Vegetables such as lettuce, celery, and radishes, which are to be served as salads, should first be washed carefully in plain water to remove excess dirt and then also dipped in boiling water for thirty seconds. Crispness can be restored by transfering them immediately to cold, boiled water and placing them in a refrigerator.

Chloride of lime, potassium permanganate and other chemical disinfectants have proved unreliable and not as effective as boiling water. All drinking water must be boiled whenever there is any doubt of its purity. Tea should be poured into steel-lined vacuum bottles, protected from dust and dirt and allowed to cool. By eating hot, cooked foods, dysentery and other disease caused by intestinal parasites may be avoided. Native foods are always dangerous; they are a common source of parasitic infestations and should be eaten only when thoroughly cooked, served hot in clean utensils and protected from flies. Cold native food should never be eaten.

Babies' food, requiring a formula, presents a problem that can be easily met by using evaporated or dried milks. Other canned foods which have been suitably prepared are also satisfactory. Sterilized bottles are always necessary and the formula can best be prepared by adding the milk directly from the can to the bottle. Evaporated milk is probably most convenient and should be prepared in accordance with the advice of a competent pediatrician. Locally produced milk is generally unsafe.

A small, aluminum double boiler and a portable stove is necessary to sterilize baby bottles and nipples. When the bottle is removed from the boiling water, the water within the bottle is sterile and may be used in the formula. The nipple should also be carefully sterilized and placed in position on the bottle without touching its inside surface. If the prepared bottle is again dipped into the boiling water, the contents may be fed to the child with safety. Canned vegetables and fruit juices should be purchased before leaving home. These foods are to be preferred to fresh fruits and vegetables because they are of good quality, freshly prepared, sterile, and easily handled. They may be purchased in cans containing enough for a single infant feeding.

For adults, the diet should be well-balanced, including meat, starches, fruits and vegetables. Food should be well-cooked, simple, neither highly spiced nor rich. Most foods for a complete diet may be purchased locally. When fresh foods are not available, canned goods can usually be obtained.

When the tropics were first commercialized, explorers drank only hot tea, served in a clean cup and made with water that was known to have been thoroughly boiled. Tea is still the most prevalent beverage and can be obtained anywhere. Since then, however, coffee has been merchandised in a powder form and is probably more satisfactory. It is readily soluble in hot water and evaporated milk may be used instead of cream. Canned fruit juices may also be used with safety and carbonated water is generally acceptable. Native ice, however, should never be used and it is only safe to use ice that has been made from boiled water. While alcoholic drinks are readily obtainable, they should be avoided because they tend to lower resistance to disease and increase susceptibility to heat disturbances.

Scrupulous cleanliness is imperative at all times because of the ever-present dangers to health. Houses should be tightly screened from flies. If there are flies in the dining room, there will be many more in the kitchen where they can contaminate the food. For this reason it is never safe to eat food which has not been adequately protected from flies. The presence of flies indoors is a danger signal.

Clothing should be light and porous to insure free air circulation. This permits perspiration to evaporate rapidly, cooling the body. Materials which hold moisture are to be avoided for comfort and health. Pith helmets and wide-brimmed hats should be worn against the direct rays of the sun. The back of the neck and the eyes, especially, should be protected. These precautions are extremely important.

The newcomer should allow time for a rest period each day to conserve his energy. This time is generally after the noon meal and not only do these siesta periods restore mental and nervous energy but they also tend to prevent visitors from indulging in strenuous activities during the heat and humidity of mid-afternoon.

Most persons, living in the tropics, require at least eight hours of unbroken sleep each night, preferably on a veranda that is protected from mosquitoes. Late hours should be avoided since they tend to produce insomnia and, later,

Although food is usually safe in restaurants equipped with modern appliances, care should be taken to sterilize all foods purchased on the streets in native markets.

may even induce hysteria and other nervous disorders. Experience has shown that more rest is required when living in the tropics than in the more temperate zones.

Fresh air is important. A comfortable bed with a well-fitting mosquito net is essential in the tropics. Iron beds are preferable and good, woven-wire springs are better than box springs. Kapok mattresses and pillows are also necessary. The legs of the bed may be placed in small cans of kerosene to prevent crawling insects from reaching the sleeper. Antivermin powders should be used liberally since disease is very often transmitted by various insects and animals.

Mental adjustment is also important and the person who does not adjust easily to unusual factors will find that he is living under a severe strain. Above all, a sense of humor is necessary. It will lessen the tension on the nervous system and will help in adjusting to life in the tropics. The tempo of the natives is slower than that of the average newcomer; adjust your activity to their leisurely pace.

They

But while the audience rapturously applauded the magician, there were many who breathed a silent prayer for the real miracles of science.

"DOWN THROUGH THE AGES man has always asked for miracles. Tonight I shall show you some of the answers to that universal demand, 'Show us miracles!'"

With these words the nationally known magician opened his benefit performance. For more than two hours he kept his audience mystified and captivated with the marvels of the Magi of Persia, the holy men of India, the conjurers of Egypt, the witch doctors of Africa, the wizards of China and Japan, and with his own modern version of "eyeless vision."

But while the audience applauded these sham miracles, there were many who breathed a silent prayer of gratitude for a real miracle that was being manifested; not a sudden transformation, but something no less wonderful because it had come about gradually and quietly.

Three years ago this magician could not have stood before this audience or any other. His well-trained fingers had lost their cunning because the mind that controlled them had been stricken with a malady that made him helpless, utterly without hope or strength. He was confined in a psychiatric hospital, the victim of a mental breakdown. Now fully recovered, he was in demand from one end of the country to the other. Among all his public appearances, however, this one had special significance. For he appeared proudly and frankly before his own group, an association of recovered mental patients.

The restoration of health after an illness so devastating might in itself be regarded as a miracle, except that wonders often repeated cease to be so regarded. Thanks to "shock" therapy and other methods of treatment, a large percentage of the men and women who enter mental hospitals are discharged as cured. But what usually happens when they attempt to take their places in society? Here are some typical experiences.

A young man, after leaving a psychiatric hospital, managed to obtain a position and moved into a rooming house. All went well

Show Us Miracles!

***Science has achieved much in the struggle against mental illnesses, but here is a problem it cannot solve alone says* PAULINE ROSENBERG**

until the landlord chanced to learn that his lodger had been in an institution for the treatment of a mental disease. The landlord said he couldn't have a "crazy tenant," and asked the former patient to move.

A young woman who had successfully taught in the public schools for five years spent six months in the same institution and was then discharged as cured. Five months later she applied for reinstatement in her former position. Questioned searchingly by an assistant superintendent, she was forced to reveal how she had spent her leave. After a year had passed she was still without assignment.

A man who had operated his own business for many years suffered a mental breakdown and was treated in the state hospital of a nearby town. When he was ready to leave he felt that he could not face his fellow townsmen. They would look askance at him, for he had been branded, stigmatized by the court commitment. His home and his business waited for him, but he remained in another town, an exile.

These patients and many others who suffered similar experiences raised the question, "Why is this stigma attached to mental disease? Can't something be done to remove it?"

A patient who undergoes an appendectomy and spends two weeks in a hospital, or one who spends a year in a sanatorium under treatment for tuberculosis, does not suffer from this stigma. He can speak freely of his ailment, his hospital experience and his recovery. But one who has been in an institution for the treatment of mental ailments is looked upon with suspicion. Even the members of his own family may not fully trust him, or if they do they feel that they must conceal from friends and neighbors the fact that this son or daughter has been a "mental case."

When the recovered mental patient attempts to gain an economic foothold in the world, he encounters discrimination. He feels he must conceal his experience in the hospital, and this concealment in turn has an unhealthy effect upon himself. How can he lead a normal, happy life when he is repressed, lonely, filled with a sense of inferiority and degradation? No wonder many men and women who seem to have regained their mental health slip back when they are forced to cope with conditions so difficult.

Science has achieved much in the struggle against mental illness, but here is a problem that science alone cannot solve. There still remains a formidable gap between life in the hospital and life in the outside world.

Among those who recognized the great need of bridging this gap and of removing the stigma of mental disease was Dr. Abraham A. Low, assistant director of the Psychiatric Institute of the University of Illinois Medical School in Chicago. He believed that there was a way to solve this problem; not quickly and easily, but by a method requiring persistent and united effort. If recovered patients could be educated to help themselves and could be organized to work together, they could, he believed, remove the stigma which the disease had inflicted upon them.

This idea was put into action in November, 1937, when, after a number of conferences with the staff physicians, thirty former patients, under Dr. Low's leadership, organized for the purpose of combating the stigma and promoting their economic and social interests. They called their organization "Recovery, the Association of Former Patients of the Illinois Psychiatric Institute." Parenthetically, it should be noted that this Psychiatric Institute is a relatively small institution of its kind, having at the present time a capacity of only

sixty beds, although plans for its enlargement are being carried out.

Today, with Dr. Low as president and Harlan Tarbell, the noted magician, as vice-president, Recovery comprises more than 150 former patients and 600 relatives and friends who are associate and contributing members.

The former patients realized from the beginning that in order to work against the stigma and to carry the idea of recovery to the public, they must themselves know more about the basic problems of mental disease and adjustment, and also about the legal, economic, and social problems involved. At the same time they insisted that their relatives be given instruction in these matters.

The relatives had to be made to understand that they first of all and above all others were responsible for the stigma fastened upon mental patients and for the large number of relapses. The "hush-hush" policy adopted by most families not only made it difficult for the patient to build up his self-confidence but also had an unwholesome effect on the attitude of the public. How could outsiders be expected to have confidence in the ex-patient, if his own family was ashamed or distrustful of him? Furthermore, if those at home showed irritation or failed to discipline their tempers, the effect on the sensitive patient was bound to be upsetting. Oversolicitude and apprehensiveness on the part of the family likewise tended to disturb the patient's balance.

Accordingly, the relatives were asked to attend meetings, held twice a month at the hospital, and listen to lectures by a physician. The relatives came, first because they were required to do so, and later because their interest and enthusiasm had been aroused. At these assemblies, ex-patients and their relatives meet with the relatives of patients now in the Psychiatric Institute. The atmosphere is one of ease, relaxation, and sympathetic understanding. Problems of emotional control, of adjustment, and of aftercare are discussed frankly, calmly, and hopefully.

Proof that these meetings are effective is seen in the fact that since they were inaugurated the percentage of relapses at the Psychiatric Institute has steadily decreased. A certain number of relapses are regarded as unavoidable, but a large number of them are due to the discrimination, distrust, fear, and suspicion that patients encounter on their return to the social and economic world.

Take the case of Ruth, whose story is told in "Lost and Found," the unique bimonthly magazine published by the Association.

Ruth recovered after a course of insulin treatments, returned to the community, and obtained a position as maid. The woman who employed her did not mean to be unkind. Perhaps she prided herself on her broad-mindedness in employing a girl who she knew had suffered from a mental illness. But she watched every move that Ruth made. For example, at five o'clock, when preparations for a six-o'clock dinner were proceeding in an orderly fashion, the lady of the house rushed into the kitchen, exclaiming in a strident tone:

"Ruth, I am afraid you will not be ready on time; you know how particular Mr. M. is."

When Mrs. M.'s anxious watchfulness and constant stream of criticisms and warnings so unnerved Ruth that she broke a dish or had some other accident, there was an unfailing reminder that perhaps she was not yet quite herself.

"That's why I must tell you again that you must be particularly careful. Yesterday there was no salt shaker on the table, and the other day you forgot to mail Mr. M.'s letter. I hate to tell you, but I am afraid your memory is not yet normal."

Ruth finally gave notice and left the good lady. Before securing another position she spent two weeks at home, and there things were even worse. Her mother, father, brother, and sister kept a constant watch. Mindful of her "failure" in her place of employment, as well as of her hospital record, they commented on every slip. If she carried a dish from the kitchen to the dining room, her mother admonished her, "Don't drop it; be careful." If she prepared to go for a walk, her father objected, "It's getting dark; don't go alone. I'll ask George to go with you."

When Ruth reported all this to the doctor, her voice trembled. "Believe me, Doctor," she said, "if I hadn't been prepared for this in the meetings of the Association, I don't think I could stand it now."

Prejudice against the ex-patient arises from the popular misconception, "Once insane—always insane." What could the members of this small association do against a belief so widespread and so deeply entrenched in the public mind?"

One thing at least was plain. They must help themselves. They must strengthen their confidence in themselves and in each other. When members of the association show that they trust each other, they have gone a long way toward overcoming the suspicion of the public. The development of a labor exchange was one of the practi- *(Continued on page 1038)*

The DUCTLESS GLANDS

AUGUST A. WERNER *unscrambles the complexity of glandular functions; their inter-relation and also the stupendous effects they may have on other body structures*

THE OBJECT of most interest to a normal human being is himself; the next most interesting, is another person. All normal persons are concerned primarily with their own inherent right to life and the pursuit of happiness, and then with the right to life and the pursuit of happiness of others. A prerequisite of normal life and happiness is that we must first have a healthy body and that all the components of this body must have normal development and function. Normal development and function depend in great measure upon the secretions (hormones) of the ductless glands at various periods of our existence, from the beginning of embryonic life to death.

The science which studies the function of the ductless glands is known as endocrinology, one of the newest and most interesting divisions of medical knowledge. The growth of the body (skeleton, muscles and organs), the proper development of the nervous system, the appearance of the secondary sex characteristics at puberty, the orderly sequence of the menstrual or reproductive cycle, the nature and rate of the chemical changes in the body, all these and more, are influenced by the hormones of the ductless glands.

The secretions of the ductless glands largely determine whether a person shall be a dwarf, a normal individual or a giant; whether he will be an idiot, a person of normal intelligence or a genius; whether the child will be born with a body in which all the components will function normally, so that the child will gradually mature at puberty and during adolescence and will maintain this normality; whether he will have normal weight, become obese or unnaturally slender.

Research in endocrinology attempts to explain the intricate physical and chemical problems which are the basis of the physiology of life. The ultimate object of these investigations is to apply this knowledge for the benefit of mankind.

Glands are classified as excretory and secretory. An excretory gland is one which eliminates from the body waste products of metabolism (resulting from chemical changes), the kidneys being the most common example. Excretory glands have ducts. However, all glands having ducts are not excretory.

A secretory gland is one which elaborates a substance that is useful to the body. Secretory glands may be further divided into external secretory and internal secretory. An external secretory gland has ducts which convey the secretion to the organ or part where it is needed. In some instances these ducts are rather elementary, such as those of the mucous glands. Again, they are definite anatomical structures, such as Stenson's duct for the parotid glands (the large salivary glands lying on either side of the mouth), the opening of which can be seen opposite the crown of the second upper molar tooth. Another example of glands having ducts which convey useful secretions is the pancreas, whose external secretions, so necessary for digestion, are emptied into the first part of the small intestine, just beyond the stomach. The common bile duct, which receives branches from the gallbladder and the liver, also discharges the bile into the small intestine, usually in conjunction with the duct from the pancreas.

External secretions serve various purposes. Familiar secretions are those of the digestive system. Saliva, from the salivary glands opening into the mouth, digests starches, such as are contained in bread, rice, potatoes and other foods. Before starches can be assimilated and utilized in the body for the production of energy, they must be changed into

simple sugars, of which glucose is the most abundant and important. Ptyalin, the digestive ferment of the saliva initiates starch digestion, which is finally completed in the upper part of the small intestine by the ferment amylase from the pancreas.

Hydrochloric acid and pepsin, secreted by the glands of the stomach, and trypsin, a ferment from the pancreas, digest proteins such as are contained in meats, eggs, fish and cheese. Fats are digested in the small intestine by the pancreatic ferment, lipase.

Mucous glands, moisten and lubricate membrane surfaces, such as those which line the nasal passages, the mouth, the pharynx, the stomach, the intestinal tract and the air passages to and within the lungs. Sebaceous glands in the skin soften the skin and oil the hair. Lachrymal or tear glands moisten the exposed surfaces of the eyes. The mammary glands or breasts sustain the young.

Some glands may be classified as mixed, elaborating both internal and external secretions. An example of this type of gland is the pancreas, which produces digestive ferments (external secretions) that are conveyed to the small intestine by the pancreatic duct, and insulin (an internal secretion produced by the islands of Langerhans). Insulin is chiefly responsible for storing glucose (sugar) in the liver of a normal person, when a certain concentration appears in the blood. Insulin is the pancreatic hormone which now enables most diabetic persons to live comparatively normal lives.

As the term "ductless glands" implies, these glands have no ducts by which the secretions can be conveyed to the parts of the body where they are needed. The hormones of these glands are produced by specific secretory cells, and they are then taken up directly by the blood, to be thus conveyed to the various organs and tissues of the body. Those cells and organs not requiring these hormones are not stimulated or affected by them.

The ductless glands are organs composed of a group (or groups) of specially differentiated cells and tissues which exercise and control through their hormones specific functions in the bodily economy. These glands may be single, in pairs or multiple in number.

Single glands are the thymus, the pineal, the thyroid, the pancreas, the spleen and the prostate. Perhaps some functions of the liver would justify its inclusion in this group. The pituitary gland is often listed as a single gland, but in reality it is two glands, with a very small and delicate third part situated in the middle portion that has been classified as being separate and having a distinct function.

The sex glands and the suprarenal glands are paired. Multiple glands are represented by the parathyroids, which are usually four in number and are situated in the neck.

The lymphatic glands are situated in various parts of the body and extremities. In a localized infection, many of these can be felt just under the skin, in the sides of the neck, under the arms and in the groin. They assist in controlling the spread of infections. While the lymphatic glands have no ducts, they also do not produce any known hormones, therefore, they are not classified as ductless glands. To be classified as a ductless gland, the organ must have an internal secretion (hormone) which is distributed to various parts of the body where needed, by the blood and without the aid of ducts.

It probably has occurred to every thinking person that there must of necessity be some delicate mechanism by which the functions of the body maintain an equilibrium. There is a normal interchange of oxygen and carbon dioxide in the lungs. We swallow some food such as bread. After the act of swallowing, it is beyond our control. It is passed along the gastrointestinal tract, acted upon by various digestive juices and changed chemically step by step to glucose, absorbed and finally assimilated into the liver and muscles as glycogen. Here it represents potential energy subject to utilization under the influence of the proper stimuli, such as fear, fright, anger and work.

Each person has two nervous systems; the voluntary and involuntary. The voluntary nervous system, composed of the brain and the spinal cord, makes it possible for us to be social beings and to do the things that we want to do. The other system is the involuntary or autonomic nervous system. This system primarily controls the vital processes. There are two divisions of this autonomic nervous system, which are antagonistic to each other when stimulated, but which otherwise mutually counterbalance each other.

This dual arrangement necessitates some kind of harmonizing mechanism for the involuntary nervous system. We have such a mechanism in the secretions of the ductless glands. Through intelligent direction by virtue of the brain and the spinal cord (voluntary system) we are able to protect our body, which in turn controls these vital organs and structures so necessary to life.

When the ductless glands secrete hormones and function normally at the proper periods in life, the individual is normal and well developed both physically and mentally, provided that no disease processes which may affect physical growth and health are present.

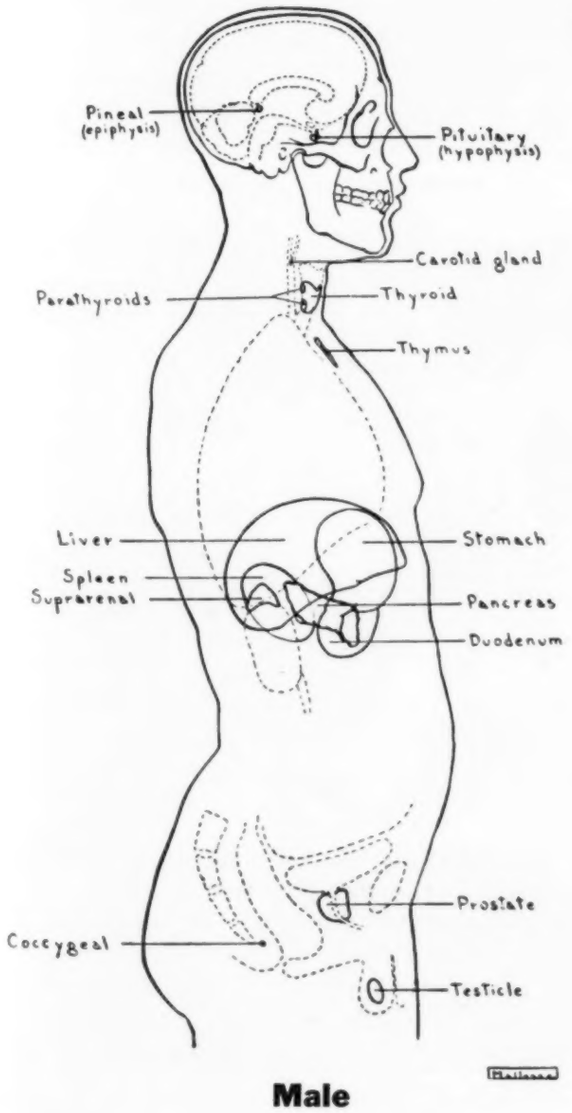
Surprisingly enough, out of the two billion persons who inhabit the earth, no two are completely identical. Heredity is an important factor in the differentiation of physical features; it determines, through the nervous system, how we will react toward our environment, and these reactions determine our personality or individual identification.

Probably the most important factors in determining physical characteristics, and to some extent personality, are the secretions or hormones of the ductless glands. A physical resemblance to ancestral traits is due, in part, to the fact that we may inherit, along with other things, ductless glands which will function similarly, during the period of growth, to those of our progenitors.

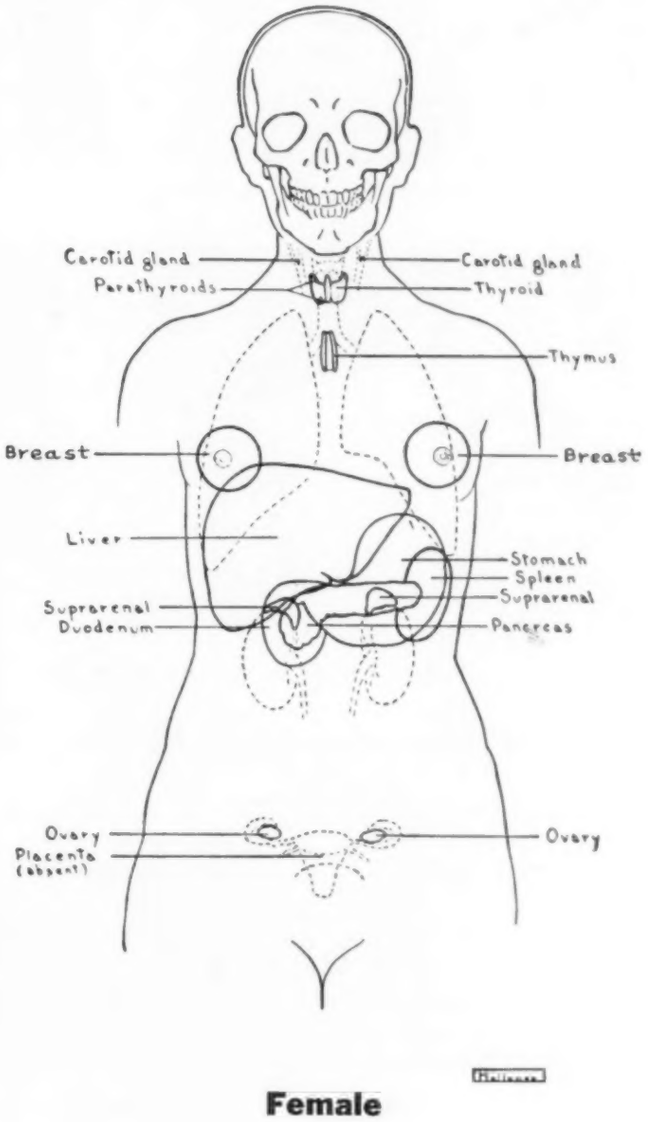
The glands of the embryo and fetus may be affected during development by disease processes in the mother such as maternal hypothyroidism, a condition resulting from insufficient thyroid secretion. After birth various diseases, improper environment and nutrition may disturb glandular functions.

The ductless glands affecting growth are the anterior pituitary, the thyroid, the gonads or sex glands, the pineal and the thymus. The effect of the pineal and the thymus glands upon growth are of minor importance when compared with the influence of the anterior pituitary, the thyroid and the gonads. Growth disturbances of pineal *(Continued on page 1020)*

SCHEMATIC CHART OF THE ENDOCRINE SYSTEM



Male



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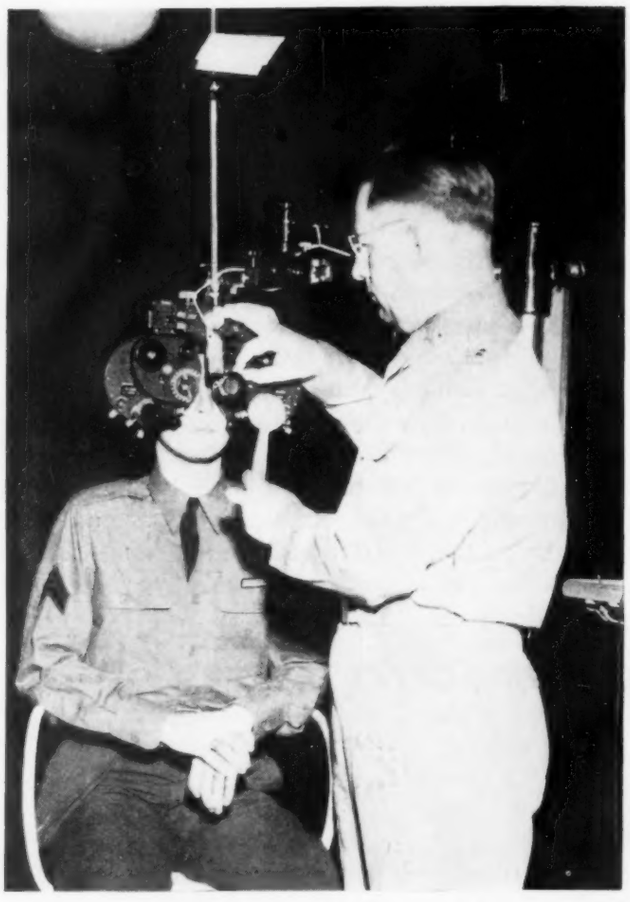
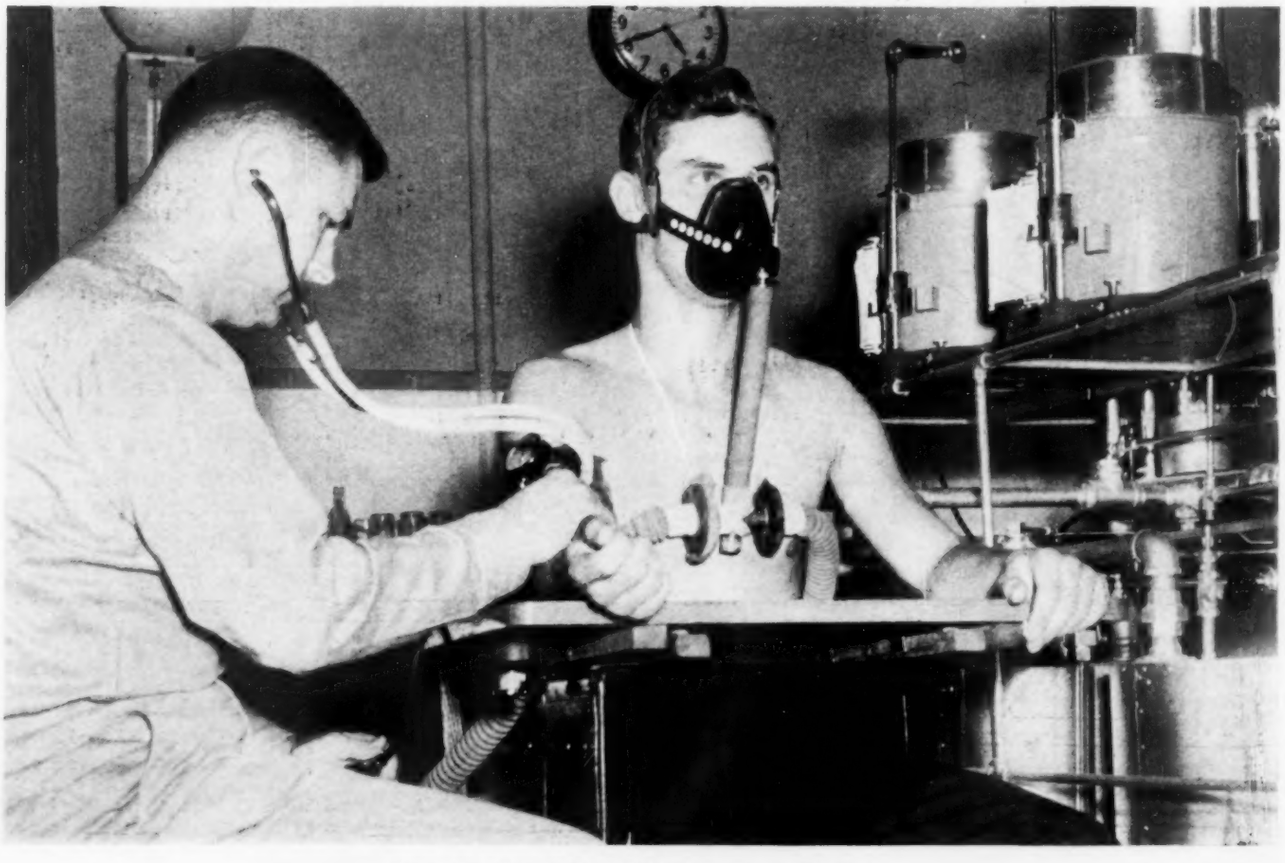


Muscle balance of the eyes is tested.

Audiometers determine hearing acuity.



Army physicians study individual oxygen requirements.

AVIATION MEDICINE

By HARRY G. ARMSTRONG

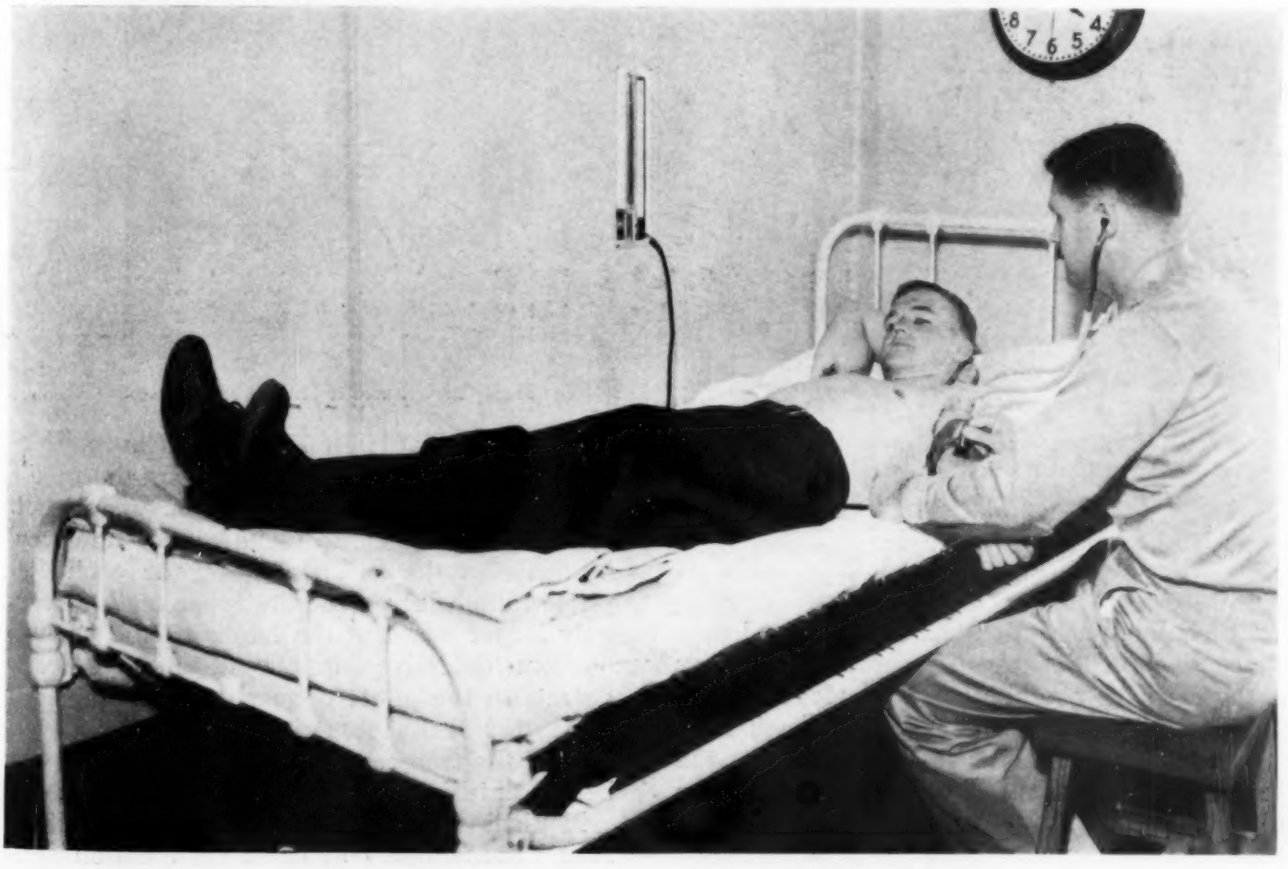
THE SURGING growth of civil aviation and expansion of the air force in this country have brought into prominence a new specialty in medicine. This specialty, known as aviation medicine, is a branch of medical science which deals with the selection and maintenance of airplane pilots and the prevention and treatment of diseases and injuries of those who fly.

Aviation medicine is not new; it has been recognized as a special branch of military medicine since 1918. Studies on the effect of flight were made in 1783 when animals were sent aloft in a smoke filled balloon. They returned to earth unharmed. This test was followed by the experimentation of Pilatre de Rozier, a young French nobleman, the first person to fly.

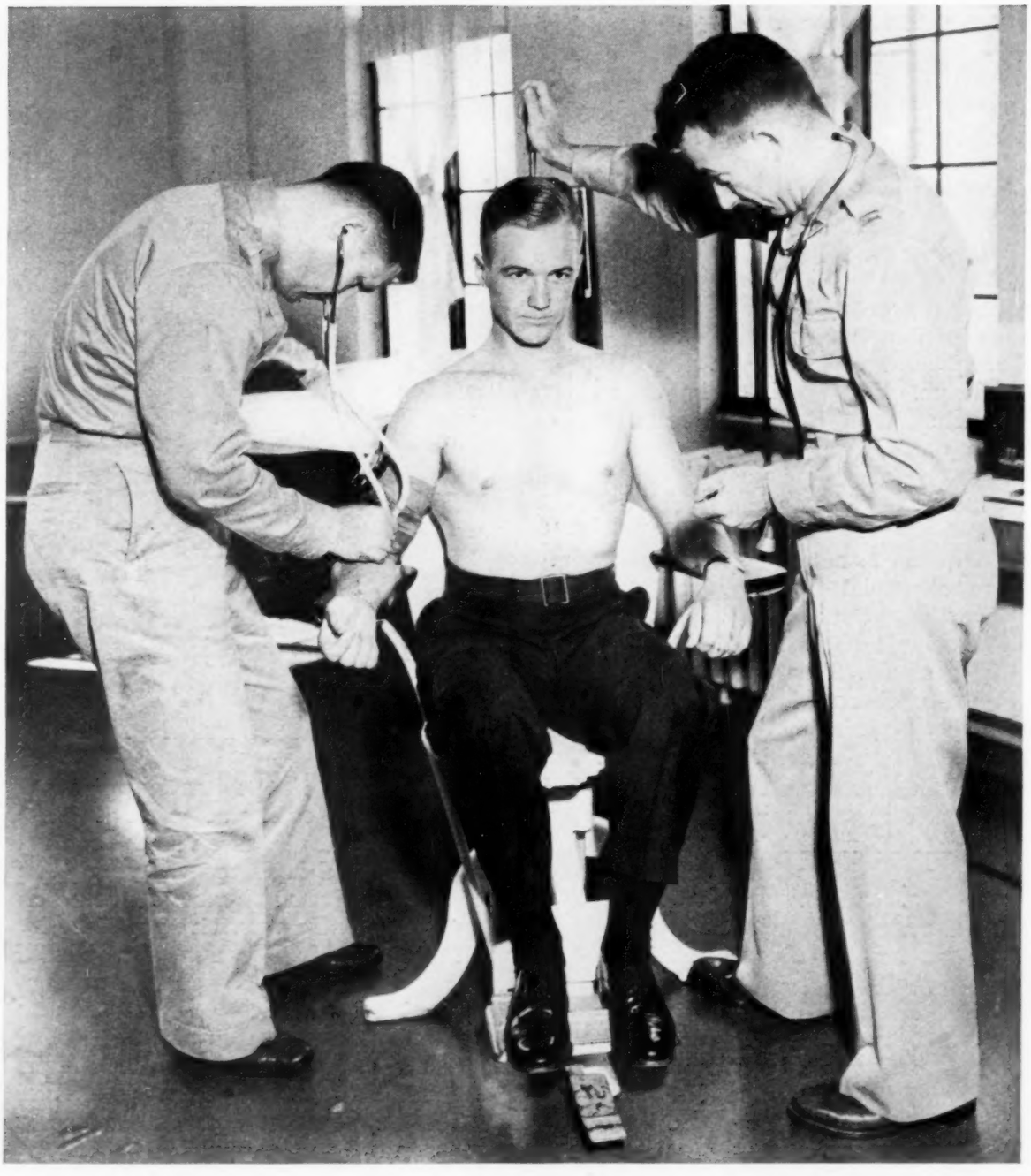
The absence of ill effects on the early balloonists, who ascended only a few thousand feet, gave a false sense of security, however, and eventually resulted in tragedy. In 1875 Tissandier, a famous meteorologist, and two companions Croce and Sevel made one of the first high-altitude balloon flights. Here is a graphic description of this flight in Tissandier's own words, as they were ascending:

> I now come to the fateful moments when we were overcome by the terrible action of reduced pressure. At 22,900 feet . . . torpor had seized me. I wrote nevertheless . . . though I have no clear recollection of writing. We are rising. Croce is panting. Sevel shuts his eyes. Croce also shuts his eyes . . . at 24,600 feet the condition of torpor that overcomes one is extraordinary. Body and mind become feebler. . . . There is no suffering. On the contrary one feels an inward joy. There is no thought of the

Official Photographs U. S. Army Air Corps



Blood pressure is recorded during several phases of physical activity.



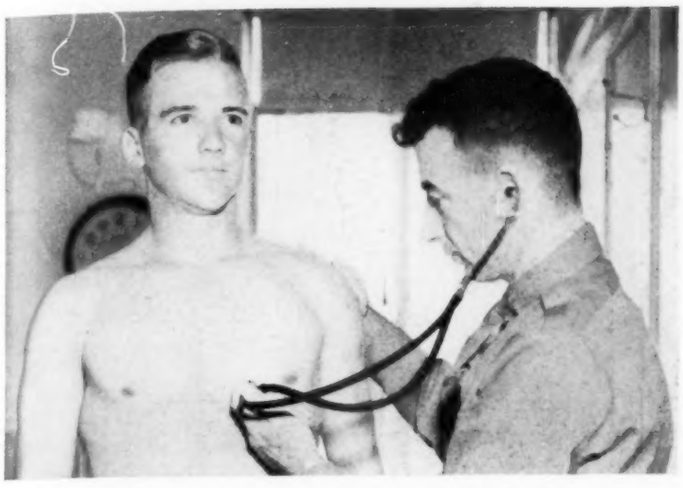
The Barany chair is used to test sense of balance.

dangerous position; one rises and is glad to be rising. I soon felt myself so weak that I could not even turn my head to look at my companions. . . . I wished to call out that we were now at 26,000 feet but my tongue was paralyzed. At once I became powerless and lost further memory.

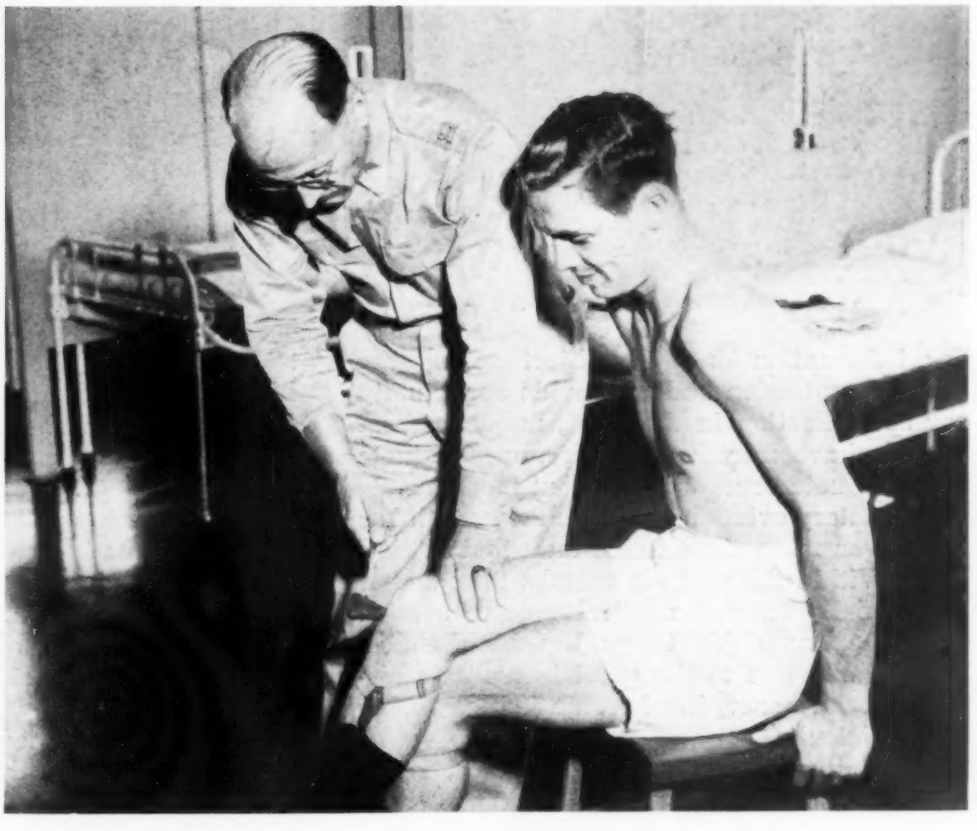
The balloon ascended to 28,820 feet and then descended of its own accord. Tissandier recovered; his companions were dead.

The results of this tragic flight attracted the attention of the medical profession to the hazards of flying, but no decided interest was shown in aviation medicine until after the airplane was invented. Between 1910 and 1914 special medical examinations were required for military pilots in England, France, Germany and the United States and special medical services were provided for flying personnel. These provisions were inadequate, however, because, as the records show, for each 100 pilots killed during the first year of that war, only 2 met death at the hands of the enemy, 8 from defective equipment, and 90 from defects in the pilots themselves. In addition, it was found that sometimes as high as 50 per cent of the trainees developed a neurosis even before finishing their course of instruction.

Medical research laboratories were established immediately at principal aviation centers, staffed with the best medical minds



Shown here are two common physical tests for seeking heart ailments and checking reflexes. Physical examinations are rigid and thorough for the air service. The selected personnel is organically fit in every respect, has been weeded out of countless numbers of applicants.



available, to determine the cause of this disability. Before the war had ended in 1918, the results of this research were everywhere evident. Pilots were more carefully and scientifically selected, accidents markedly reduced, and the fitness of the flyers maintained by specially trained medical officers.

Following World War I, interest in aviation medicine lagged until 1926. In that year the Bureau of Air Commerce of the Department of Commerce was established for the control of civil aviation and later supplanted by the Civil Aeronautics Authority. Military aircraft performance began to improve at this time and the scope of aviation medicine began to broaden rapidly. Since then the number of civil physicians engaged in the practice of aviation medicine in this country has steadily increased until today approximately 1,000 are engaged in this work. Most of these doctors are examiners for the Civil Aeronautics Authority or for the commercial airlines, while a few are engaged in research. In addition to those who have specialized in this work, the profession, generally, has become interested by reason of the large number of persons who now travel by air, none of whom are examined prior to flight and many of whom are invalids or are convalescent from recent operations or illnesses. To fill the need

Oxygen mask in use, attached to a supply tank.

55647

THE EFFECT OF OXYGEN-WANT ON HANDWRITING DURING ASCENT AND DESCENT

Ascent to 25,000 ft. Without Oxygen	Explanatory Remarks
A sample of normal handwriting in flight at 2000 ft.	Control specimen of normal handwriting.
10000 ft - breathless	No apparent effect.
15000 ft - feel necessary generally dumb feeling some numbness in leg and hands	Beginning muscular incoordination.
18000 ft - very [illegible]	Definite physical and mental inefficiency.
20000 ft: faint - numbness in legs - vision fading	Last zero left off both 15000 and 20000 - Marked incoordination.
22000 ft: pain or red-bubble pain to me feel better	Feeling better? Evidence of false feeling of well being.
23000 ft: feel good stay on for legs feel and arms legs numb	Feel good? Insight, judgment and coordination very faulty.
24 Oxygen - Cyanosis [illegible]	Mental and physical helplessness.
250 ft ox [illegible] turned on	Improvement with few breaths of oxygen.
3600 ft. Very tired tingling - Hearing returning feel O.K. Now -	Last zero left off - general improvement but not completely normal.

The effects of high altitudes on handwriting.

for information on this subject among the general profession and to provide opportunity for specialization in this field, many medical schools have introduced both undergraduate and graduate courses in aviation medicine.

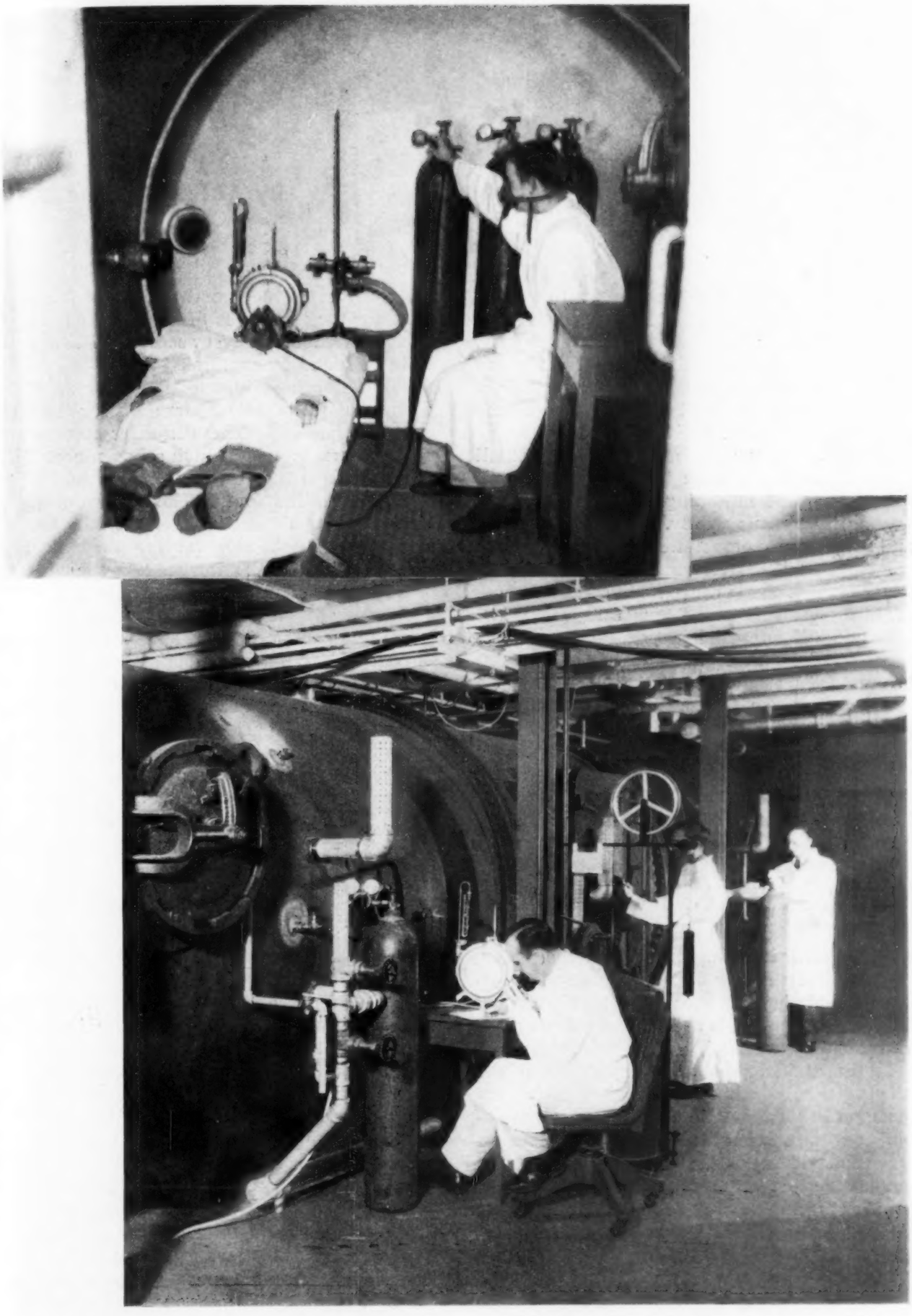
In military aviation medicine the growth has been even more remarkable than that in civil life. Within the past six months the number of specially trained medical officers serving with the Army Air Corps has been almost tripled and, due to the great increase in aircraft performance, has become immeasurably more difficult.

The first training problem is the selection of individuals who have the ability to handle the heavy, complicated machines which are used by the Army Air Corps. After selecting and training military pilots they must be protected, so far as possible, from the great stresses of flying. Noise, vibration, glare, wind, cold, high speed, rapid changes of altitude and the effects of the rarefied air and air pressure at the higher levels are factors which must be considered. A sudden, sharp turn or acrobatic maneuver in a modern fighter-airplane causes the pilot to go temporarily blind and may produce unconsciousness.

Without oxygen a pilot at an altitude of 12,000 feet begins to lose his mental and physical efficiency. These symptoms are more pronounced at 18,000 feet. Between 18,000 and 22,000 feet even the most hardy aviator loses his judgment; his actions simulate those of an inebriate and he becomes either sleepy and comatose or hyperactive with outbursts of laughter or rage. At about 25,000 feet unconsciousness occurs and unless descent to a lower altitude is made death results within a few minutes.

Even with oxygen, altitudes are limited. Following a rapid ascent to 30,000 feet or above, a condition similar to the "bends" of deep sea diving may develop. Nitrogen bubbles are then released into the blood stream, leading to pain, paralysis and even death. At about 44,000 feet the pressure of the atmosphere is sufficiently reduced so that pure oxygen can no longer be absorbed into the blood from the lungs in sufficient quantities to sustain life. In this circumstance aviators have been known to suffocate from lack of oxygen even while breathing pure oxygen.

Many other difficult problems beset military aviation medicine and new ones are appearing faster than the older ones can be solved. Like aviation, aviation medicine, too, is fascinating and has fired the imagination of the medical profession. And now that this field is offering excellent opportunities for well-qualified physicians both the growth and permanence of aviation medicine as a special branch of medical science is assured.



High altitude laboratory duplicates conditions at 30,000 feet.

Is Football

By ALFRED F. PARKER

FOOTBALL, as a disease, starts with a slight fever; the symptoms become evident a few weeks before the first game each year. These early symptoms of football fever are caused by advance stories which include a host of predictions about coaches, the outcome of games and about individual players.

By the afternoon of the first game, football fever is running a high temperature. Bands are playing and marching. Cheer-leaders are waving their arms wildly. The crowd cheers and sings; pom-poms flutter. The announcer's voice is magnified over loud speakers. Players in bright jerseys prance about. Toes thud against pigskins. The teams line up for the kick-off. White knickered referees blow whistles. The first game of the season has begun.

After three or four games, football fever reaches a seasonal high. And there the fever remains until the last post-season game is a matter of history.

Stranger than fiction, is that fact that all this fuss is made over a game that, from opening whistle to timer's gun, offers for players and spectators approximately ten minutes of action. According to one study, made under the supervision of the National Federation of State High School Athletic Associations, about nine minutes plus is consumed in a game during the time that the ball is actually in play. The remainder of the game-time, totaling forty-eight minutes, is used to line-up for plays and to call signals.

If the statisticians are correct about the playing time consumed in a game, there are perhaps only two real reasons, then, why football continues to hold the top-interest of American sport lovers. For the player, the small amount of playing time is packed with the keenest kind of thrilling action; for the spectator, there is suspense. No one can ever predict accurately what will happen in a football game.

Why then, if a football game consumes such a small amount of playing time, worry about the dangers of the sport? Why all this concern for the thousands of American boys who are playing football every season? The answer is to be found by examining facts.

The number of injuries listed by the California Interscholastic Federation for the 1939 season totals 449. These injuries occurred in football games held at high schools located all the way from the Northern California line to San Diego in the South. The amount of insurance money paid out for these injuries totaled approximately $4,200, varying in individual amounts from $5.00 for an x-ray picture to $75.00 for the care of a fractured leg.

A study of this California report reveals some interesting facts concerning individual injuries. For instance, totals show that there were 15 broken legs; 17 broken ribs; 24 broken noses; 31 ankle injuries, and 35 knee injuries. Other types of injuries, according to the terminology of the report, include broken teeth, injured wrists, broken fingers, concussions, dislocated elbows, and injuries of the shoulder, back, head, nose, chest, hip, arm and collar bone.

The California report does not include a list of football injuries occurring at all the high schools of that state. Many secondary schools, such as the schools in San Francisco and Oakland, are not members of the California Interscholastic Federation.

There is the possibility that the number and type of injuries, as shown in the California report, are typical of all sections of the United States. So far, of course, no complete national study has been made of injuries occurring in all high school football games. However, a sectional study does give some idea of what might be expected if a thorough investigation were made of football injuries occurring in all the high school games played throughout the United States during one season.

First reactions of some parents, upon reading the California report, is something like this: "If football can cause all those accidents, the game should be eliminated." That

Dangerous?

Acme

may be a normal first reaction, but careful study of the problem does not lead to any such conclusion.

First of all, if your boy is prevented from playing high school football, what shall he do with his free time? He is a strong, normal, healthy boy, like thousands of others. What do you expect him to do?

What some parents forget, at times, is that boys will be boys. Just the other day a boy hobbled into my office on crutches.

"What happened to you, Jimmy?" I asked.

Jimmy grinned. "Broke my leg."

"How did it happen?"

"Oh, I was 'horsing around' at a Boy Scout meeting."

"Well," I said, "did that accident teach you anything?"

"Say," Jimmy replied instantly, "I've only got two more weeks in this cast, and then I can start 'horsing around' again."

Some well-meaning parents force their sons to stay at home. But is the home a safer place than the football field? Home accidents in this country, when pictured by statistical tables, are appalling. Almost 30,000 Americans are killed every year by accidents at home! Besides these deaths, there are burns, cuts and falls. As one writer put it: "It is calculated that when you step into your bathtub you are running a thousand times more risk of injury than when you climb into a licensed airplane."

It is time, it seems to me, when all this talk about the terrible dangers of football should be evaluated truthfully. Of course, there are accidents in football, but there are also accidents in practically every other phase of life. What is needed more than anything else in football is the careful regulation of the game so that accidents are reduced to the lowest possible minimum. This problem of regulating football for boys is not exclusively a job for school administrators and coaches; parents, too, have a real responsibility.

Do you as a parent know what kind of a field your son is playing football on? Is it a turf or a dirt field; is the field taken care of properly before each game? Is your son provided with a football suit that affords him adequate protection? Was your son examined by a physician before the football season started? Is there a physician in attendance at all games where your son is playing? If your son goes to a small high school, is the school big enough to support an eleven-man team? If not, why isn't a six-man football team organized at that school? Hundreds of small schools have started six-man teams with great success.

In other words, do you as a parent know under what conditions your son is playing football? Here, surely, is a problem worth consideration. It is a major problem that, in some communities at least, might be made a project for a Parent-Teacher association committee. In many communities physical educators and coaches are pleased to learn that the parents are interested. Many coaches have a constant battle of red tape in their efforts to get adequate equipment for their football teams, and to prepare fields which are as safe as playing surfaces can be made.

There is also another matter that parents might well consider, especially those parents who are ardent football fans. Are you expecting the impossible from your son's coach? After all, is it fair to judge as successful only the coach whose teams win consistently? It is true, though sometimes the common place thought is forgotten, that one team must lose.

Furthermore, it is possible for your son to learn some of life's most important lessons in defeat. Do you always want your son to play on a winning team, never to experience defeat and learn how to adjust himself gracefully? Many coaches have come to look for the real test of character when a boy faces defeat. All defeats and no wins, of course, is not a healthy situation. But, if football offers one worthwhile contribution to the education of your boy, it is the tests it gives him in victory and defeat.

In any event, parents should know that the high school coaches of the United States are genuinely interested in the safety of your sons on the football field. One of the organizations of coaches which is constantly interested in your son's welfare is the National Federation of State High School Athletic Associations. At their annual meeting in Chicago in January 1940, they passed three new football rules which will probably contribute more to the safety of players than any of the changes for some years past.

First of the new rules which you will see in operation this season is the one which extends the time of the intermission between halves from fifteen minutes to eighteen minutes. This rule provides, also, that the teams must return to the field at the end of fifteen minutes, and that the last three minutes of the eighteen minutes may be used for warming up exercises.

A three minute warm-up period before the start of the second half may not seem of importance upon first consideration. But it has been discovered that many of the injuries in football games occur during the first minutes of the third quarter when the players muscles are not properly warmed-up and relaxed.

Another new rule provides that the penalty for any foul, which occurs during a rushing play, will be either from the spot of the foul or from where the ball is dead. In other words, the offending team will have the option of choosing either of these spots. The only exception will be in case the foul is in advance of where the ball is dead. In that case, enforcement will be from the spot where the ball is dead.

The above rule provides for a severe penalty, and, in action, would operate something like this: The team with *(Continued on page 1027)*

The modern child, raised in accord with present knowledge of dental hygiene, has seldom had a toothache. Supervision at home and periodic visits to the dentist are essential.

TEETH

By CONSTANCE J. FOSTER

"TEETH are the things that ache me," defined the small boy who was unconsciously reflecting an antiquated point of view.

The modern child, brought up from infancy in accord with present knowledge of dental hygiene, has seldom had a toothache. Proper home supervision and periodic visits to his friend, the dentist, have changed all that. Painful drilling and tooth-pulling are not the mental pictures he associates with the dental chair. These unhappy experiences seldom become necessary if a child's mouth has been under regular inspection since his first trip to the dentist's office at the age of 2. He goes for his appointments as matter-of-factly and as fearlessly as he goes to be fitted for new shoes.

The whole contour of a face depends on well spaced teeth. Irregular, crooked ones may interfere with normal digestion, affect eyesight and hearing, predispose to throat and sinus

trouble, slow up school progress and frequently distort personality development. The child with ugly teeth becomes shy and self-conscious, painfully sensitive in regard to the buck teeth about which he is teased by his playmates.

The deciduous or "baby" teeth are far more susceptible to decay than the permanent teeth. Indeed the most extensive dental decay of the entire lifetime takes place up to the age of 18. A cavity in a tooth is actually an infected wound and, like a small fire, needs to be taken care of before it is too late.

Sound first teeth aid the correct formation of the jaw and help to guide the permanent teeth to their right places. If a first tooth is lost, the dentist can replace it with a device called a denture to maintain the space.

Since the six year molars replace no other teeth in the mouth, many mothers do not realize that they belong to the permanent set. As a result of the lack of proper attention, 6 per cent of these molars are lost by the time the child is 7 or 8. Actually, the six year molars are the most important teeth of the lifetime set. They provide the largest grinding surfaces, and serve as corner posts for the mouth. If they are lost, the other teeth fall out of line and the facial contours may become badly disfigured. It has been discovered that the loss of even one permanent molar reduces the chewing efficiency of the mouth by 33⅓ per cent.

Special ages that need dental inspection are the years between 4 and 5, when decay may start, and again at 6 when the permanent molars first make their appearance.

Special ages that need dental inspection as often as every three or four months, instead of at the usually accepted six month intervals, are the years between 4 and 5 when decay may start between the teeth, and again at 6 when the first permanent molars make their appearance. The slightest pit or fissure in these teeth must be filled immediately.

At 12, if this has not been done earlier, the child's mouth should be examined to see if the teeth mesh properly. If not, the girl or boy is ready for the springs and wires of the orthodontist, the specialist who has been trained to prevent and correct irregularities of the teeth.

Irregular teeth decay faster than straight ones for malposition fosters food packs and consequent fermentation between the teeth. Malocclusion, or upper and lower teeth that do not come together properly for biting purposes, predisposes later to that unpleasant disease, pyorrhea. Certainly, irregular teeth are a beauty handicap that is often unnecessary.

The child whose deciduous or milk teeth have been closely supervised during the years when they are erupting and calcifying is less likely to need braces and bars later. The dentist can space these first teeth if there is any tendency to overcrowding.

If permanent teeth do come in crooked, it is a great mistake to postpone treatment in the hope that these teeth may eventually become straightened of their own accord.

They won't! The best time for straightening teeth depends entirely on the individual case, the type of irregularity and the degree of calcification. Some orthodontists prefer to wait until early adolescence when the face is assuming its adult size and shape. Others have been successful with children of 7 or even less. Your own dentist is the best judge in this matter so far as your child is concerned.

The orthodontist is really an engineer, applying the principles of strain and stress to teeth instead of to the bridge that spans a river. The appliances he uses stimulate growth and guide the teeth gradually into their proper position for good looks and good health. The treatment is not painful. The young patient soon becomes so accustomed to the apparatus that he is no more conscious of it than he would be of an arch support in his shoes. Up-to-date appliances are no longer heavy or clumsy and they do not interfere with mastication.

The length of time required for the straightening process varies considerably with the individual. Usually the first year sees the most tedious part of the treatment completed, provided the patient is faithful about following orders, wearing rubber bands when necessary, and doing the required muscle exercises.

But making crooked teeth straight cannot be hurried. All the good that has been accomplished is often lost if the retainer is discarded as soon as the teeth look straight. Unless they are held firmly in the new position long enough for new tissue to form around the bony sockets, they may soon revert to their former state of irregularity.

Painful drilling and tooth-pulling are not the mental pictures that today's child associates with the dentist.

Several faulty habits contribute to the development of badly shaped mouths and teeth. Sucking the lower lip pushes the upper lip and teeth out, and draws the lower teeth in. This results eventually in malocclusion.

Never place the baby on his face in the crib or allow him to suck a pacifier. Young bones are soft and easily distorted. Thumbsucking, persisted in beyond the third or fourth year, pulls the upper teeth over the lower ones and produces the unhappy result known as buck-teeth.

Mouth breathing shortens the upper lip and makes the upper teeth project beyond the lower set. As a consequence, the nose is often undeveloped except for the bridge. The possibility of adenoids should always be investigated and the offending cause removed before a child becomes a chronic mouth-breather. This can develop into a habit

that persists even after the adenoids are taken out, if surgery is too long delayed.

The baby who is bottle-fed too long may grow up with a misshapen lower jaw and teeth that do not meet properly when chewing food. The weak, receding chin so characteristic of such comic-strips characters as Andy Gump accompanies this condition.

There are still many superstitions in circulation that prevent some parents from seeking correction for mouth irregularities. One old myth claims that the child whose teeth are set far apart is destined to travel far, while close-set teeth indicates a stay-at-home. Abnormal positions of the teeth are extremely important but not on account of the good or bad luck falsely supposed to go with them!

Teeth with wide spaces between them permit drifting and turning in the sockets, and are likely to be affected by pyorrhea later in life. Crowded teeth are difficult to keep clean and therefore more subject to decay.

But the dentist's efforts comprise only half the battle for dental health. The other half consists of adequate home care. This includes the optimum diet for the prevention of tooth decay, and systematic tooth-brushing, properly done and conscientiously enforced.

The concept of the tooth as a living structure, and the discovery of the important part vitamins play in the formation of healthy teeth, has altered our whole dietetic approach to the subject.

Vitamin A rich foods such as egg yolk, butter, leafy green vegetables and liver, assist in proper formation of the teeth, and help prevent faulty enamel that is pitted and rough.

Vitamin C, which is obtained from citrus fruits, tomatoes, raw cabbage and other raw fruits and certain vegetables, especially greens, turnips and potatoes, has a profound influence on the pulp of the tooth and the formation of dentine. It strengthens the small capillaries that carry blood to the gums. Without sufficient vitamin C, the gums tend to become tender and spongy, a handicap to appearances and a prey to infection.

Vitamin D, from direct sunshine, irradiated foods and fish-liver oils, is essential for the utilization of the calcium in milk and other foods and thus helps to increase resistance to dental decay.

In general, an adequate diet for sound, healthy teeth includes plenty of leafy green vegetables, fruits and fruit juices (especially citrus fruit or tomato juice), salads, a quart of milk daily to supply the calcium needed as building material, butter, cod liver oil or other rich source of vitamin D and some meat. There is considerable evidence that starches and sweets produce mouth acidity which encourages dental decay, so candy and rich pastries should be kept at a minimum.

It is interesting in this connection to learn that primitive Eskimos of Labrador and Alaska on a native diet consisting largely of proteins and fats with very little fermentable carbohydrates, have teeth practically free from dental caries. When sweets were introduced, the children's teeth developed cavities in a surprisingly short time.

Many theories have been advanced to account for dental decay, but so far no one has been able to pin the blame on any single culprit. The mother's diet during the prenatal period has a pronounced effect on the teeth of the child. But children can have the finest possible heredity in this respect and still grow up with poor teeth if the diet during infancy and childhood is deficient in the foods that favor good dentition.

Until further research has disclosed more conclusive findings, it is safe to follow the five general rules for preventing tooth decay, each of which has considerable evidence to support it.

1. Control of mouth acidity by limiting sweets and pasty carbohydrates that tend to adhere to the surface of the teeth with consequent decomposition.

2. Proper intake of vitamins A, C and D together with calcium and phosphorus (obtained from the foods listed in the foregoing paragraphs).

3. Thorough chewing with enough hard food to provide exercise for the teeth. It is a mistake to give sieved and mashed foods exclusively to the baby, after the first teeth have erupted. The early introduction of zwieback stimulates circulation of the gums and exercises jaws and teeth.

4. Cultivate a happy frame of mind.

In connection with this last statement, it is interesting to note that high-strung, emotionally sensitive children show a greater predisposition to dental decay than more phlegmatic children. Perhaps this is because their nervousness has an inhibiting effect on digestive processes and affects metabolism. For this reason dentists caution against nagging children, allowing arguments to occur at mealtime, or permitting excitable children to listen to over-stimulating radio programs just before the dinner hour.

Brushing the teeth properly is a technic that must be learned. Moth- *(Continued on page 1025)*

Broken Bones

KELLOGG SPEED *explains the various complicating factors that may arise from improper treatment of fractured bones*

ESSENTIALLY, a fracture and a break of the bone are identical. A broken bone may result from a direct blow on any part of the body or from force carried against the body by impact. An ankle or wrist may be broken in a twisting fall. And quite rarely the unexpected and violent pull of a muscle tears off the corner or edge of a bone, as in the shoulder region or the back. Nearly one-half of the broken bones happening every day result from automobile accidents either to driver, passenger or man on the street. Fewer fractures occur in factories and industry; many occur at home, in falls from stepladders or chairs or in the bathtub.

What the break in the bone really means is that there is violent separation and division into two or more fragments, as a pine stick would be broken across the knee. This separation of the bone involves not only the hard outer portion but also the soft or marrow portion and tears the thin, membrane-like covering of the bone, similar to the membrane lining an eggshell. Tissues immediately around the fracture area, such as muscles, fat, blood vessels, or nerves may likewise be torn or damaged and add to the local upheaval. Hemorrhage immediately accompanies this splitting apart of the bone, and the bleeding may be severe, flowing around and between the bone ends, into the surrounding muscles and other tissues, or into a nearby joint if that has been opened by the crack or plane of the separation.

In a small proportion of such injuries, the skin and tissues overlying the break in the bone may also be split or opened to form a wound which communicates with the outside air. This aggravates the injury because it may permit direct entrance of foreign material into the wound. Such complications often lead to infection, causing inflammation or rapidly spreading growth of bacteria with pus formation and sometimes lockjaw, within a few days.

With this knowledge of the local disturbances which accompany the break in the bone, it is easy to comprehend other conditions occurring simultaneously. Every break is followed by pain in the area of the broken bone and is accompanied by local tenderness if touched, pressed or unwisely moved. Bleeding into the tissues will cause swelling and, in severe breaks, black and blue areas may extend from one end of a limb to the other. If an external wound is present, blood may thus leave the body. The limb may become useless to a varying degree, because the part containing the broken bone is painful and tender and has lost some or all of the support normally given by the bone formation. The injured person may not be able to rise or bear weight on the structure involving the broken bone. An arm or a finger may likewise become quite useless and hang as if paralyzed.

Fractures involving joints disrupt the smoothness of the joint surface and interfere mechanically with its well-lubricated movement in addition to flooding with blood and serum. Even a small piece of bone in an elbow joint may act similarly to a loosened ball in the ballbearing of an axle, resulting in serious loss of normal motion and eventually produce a stiffened joint. Likewise, in the human spine, composed of many individual units of bone, perfectly jointed together, any change in the column-like arrangement of the bones may lead to twisted or humpback deformity. When the spine is injured, still more serious results may follow from squeezing or tearing off of the enclosed delicate spinal cord in which are the roots of the nerves connecting with the trunk and limbs. If these nerve roots in the cord are compressed severely enough, either by the force of the accident or derangement of the bony wall about them, permanent paralysis of the part governed by the nerves may follow. Joint and spine breaks are the most serious, often leading to severe complica-

tions which approach the gravity of breaks of the bony skull containing the all-important brain. For these reasons, breaks of these structures require great skill and attention to aline the bone into as normal a position as possible and to relieve pressure on joint surface, spinal cord or nerves.

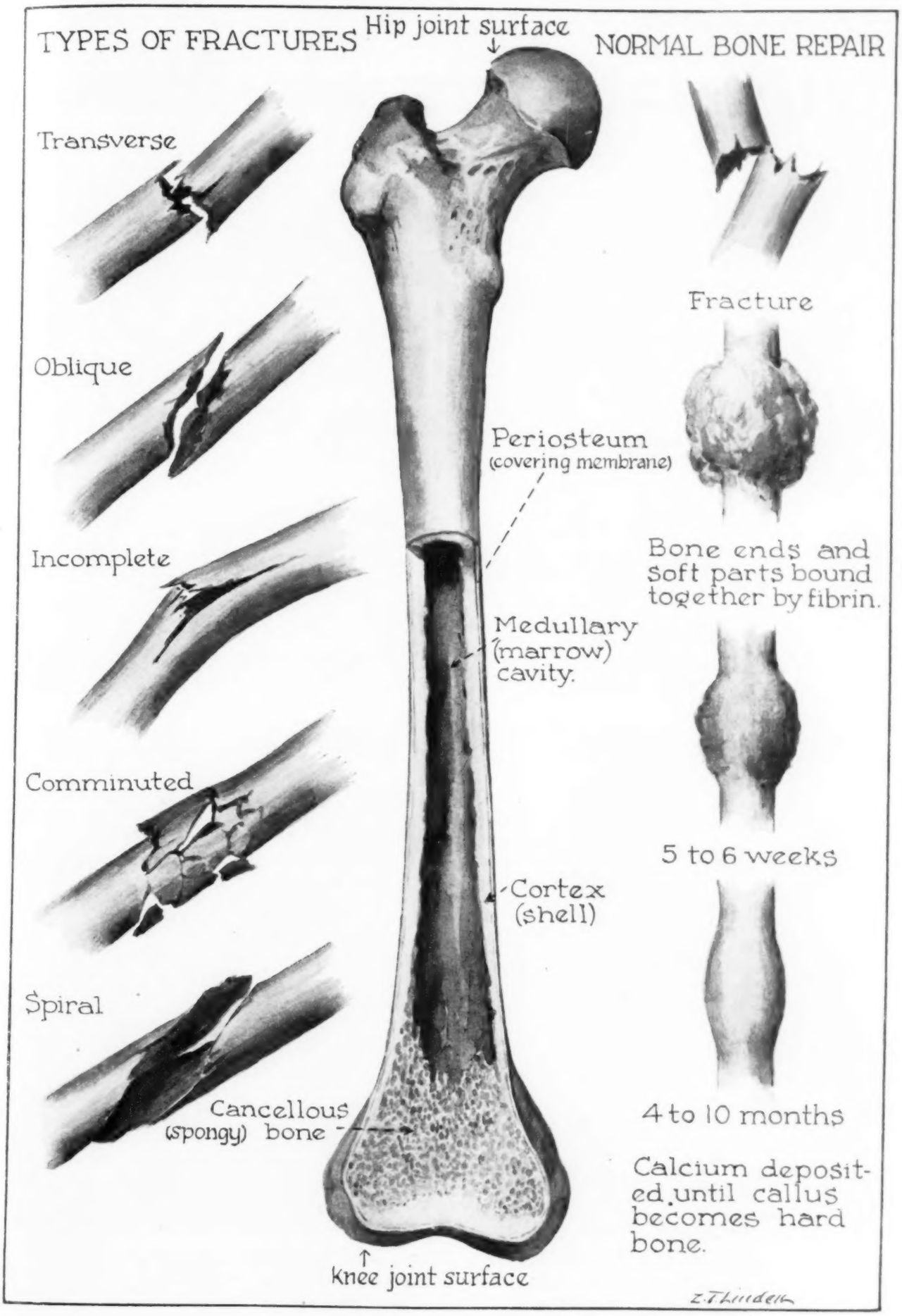
Other complications arising from bone breaks may involve the lungs. Pneumonia may develop from exposure after an accident, from prolonged posture in one position or from clotted blood lodging in the lungs. Not only may clots be carried by the circulation to the lungs, where they are filtered out before the blood goes to the heart, but globules of oil, loosened from the marrow cavity of the bone by the break, may be sucked up into the venous return to the lungs and block off small vessels in lungs or brain. This fortunately rare complication is called fat embolism, and may lead to difficulties in breathing, cyanosis or blue color of the skin, and to forms of pneumonia. When a large blood clot is carried from the site of fracture into the lungs, the condition is called embolism and may not occur until two or three weeks after the break. It may be fatal within a few minutes or it may, after a few stabbing pains in the chest (with or without cough and bloody sputum), move to another part of the body. The watchful physician may be able to forestall some of these complications.

With some or all bony support lost, the broken leg or arm may appear deformed, twisted into a strange shape and bent or pushed out of place to a noticeable degree. An individual may be aware of the noise, feeling or rubbing of the broken bone surfaces against each other and recognize at once that a fracture has occurred. Pain is, however, the commonest complaint. The best means of determining the extent and character of the injury is to subject the part, after safe and gentle transportation, to examination by means of the x-ray. This transportation should be aided by temporary support or splint, wisely applied, to prevent additional injury of the soft tissues about the break or additional displacement of the bone itself by well-intentioned but often misdirected efforts of assistance. Someone trained in first aid care becomes a valuable helper until the patient can be turned over to a physician. Mishandling, increase of pain or loss of blood may lead to severe shock and even death. All persons suffering injuries of the back or spine should be gently rolled over as a unit, like a log, face down, and be thus lifted to a support for transportation.

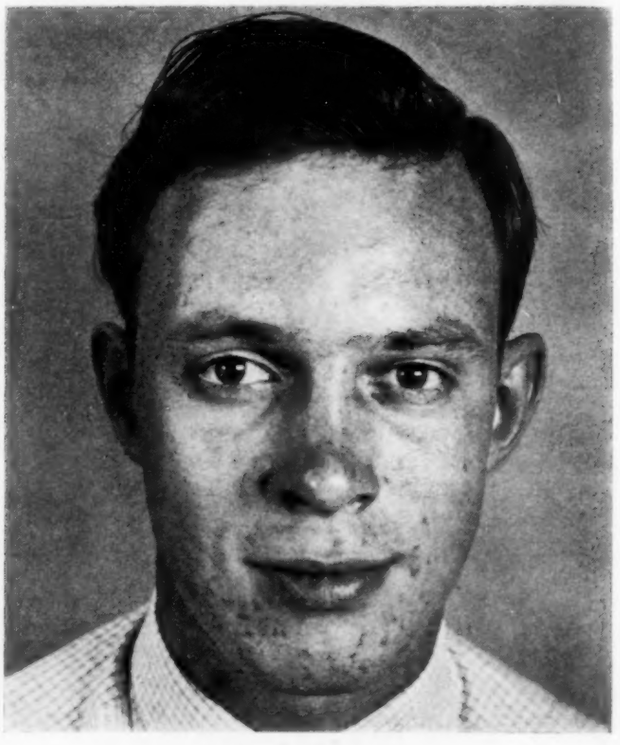
When the fact and character of the break are established and the shock of the accident is not severe enough to require prolonged treatment, which may include packing in a warm bed or even a blood transfusion, some curative line of care must be started. The treatment must first be directed toward an open wound, if present, and can best be given in a hospital by a physician. If no wound has occurred, the separated bone surfaces or fragments must be placed in normal relation as soon as that may safely be done. The next procedure requires a method to hold the bone in this position until Nature can absorb the blood poured out around the bone break and continue a normal healing course. This stage is usually accompanied by some fever, which may last for as long as ten or twelve days, depending on the severity of the injury and the extent of the damaged bone surface. The swelling slowly subsides as the blood is absorbed but may last for many weeks. The physician uses splints of various kinds to hold the parts in position during this course of healing in which the bone ends, if in contact, will form their own cement or callus and finally grow together.

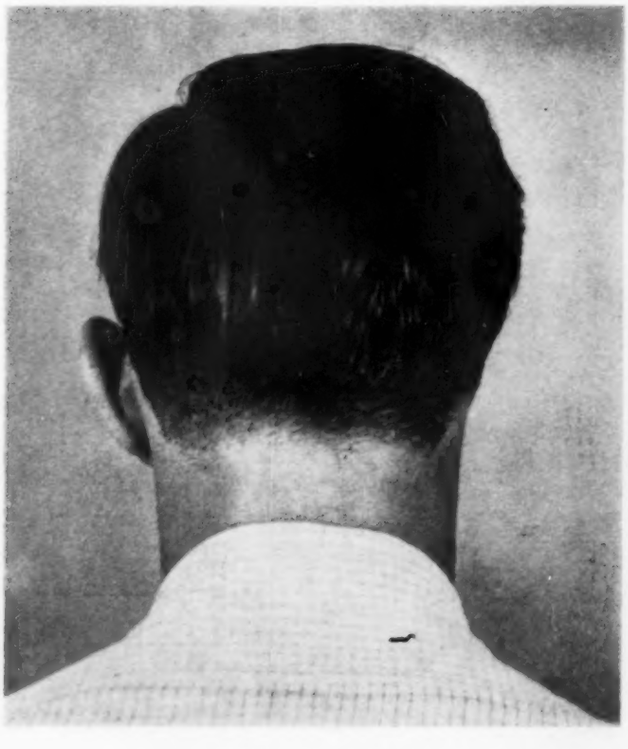
The outcome of the break depends on a natural process pursuing an orderly path, unless the bone ends are not in proper position or tissue has come to lie between. The bone in question and the age of the individual will determine, to some extent, the healing or cementing process (callus formation) and the subsidence of the injury to the soft tissues. Rarely is an operation required to begin healing, but a long period of rest in a support is necessary to harden this callus.

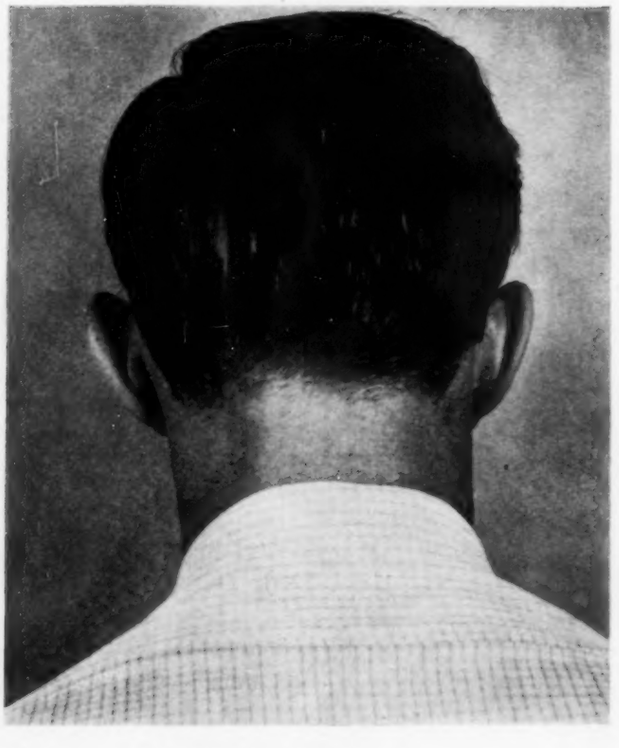
For this healing process it is obvious that necessary splinting and rest are essential and that a lack of such care may lead to loss of muscle power and volume or even temporary stiffness in joints near the break. The whole course of healing after a bone has been broken, even when it is ideally replaced in position, embraces this prolonged, secondary process. The convalescence during the latter part of the restoration period may become tiresome to the owner of the broken bone, but he must allow sufficient time for this purpose, as determined by his physician. If he does not, the repair may be unduly prolonged or may result in shortening, bowing or twisting of the bone or bones, much to his sorrow. In a small percentage of breaks the bone may fail to grow together at all and a condition of true non-union, with a false joint, finally develops. This may require surgical *(Continued on page 992)*


TYPES OF FRACTURES
Hip joint surface
NORMAL BONE REPAIR
Transverse
Oblique
Incomplete
Comminuted
Spiral
Periosteum
(covering membrane)
Medullary
(marrow)
cavity.
Cortex
(shell)
Cancellous
(spongy) bone
Knee joint surface
Fracture
Bone ends and soft parts bound together by fibrin.
5 to 6 weeks
4 to 10 months
Calcium deposited until callus becomes hard bone.
Z. T. Linden

Artificial Ears and Noses







Artificial appendages must be made to seem natural; they must have the same color, texture, translucency and flexibility of live tissue; they must have a smooth line of junction with the patient's skin; they must be light, non-irritating and remain unaltered by temperature.

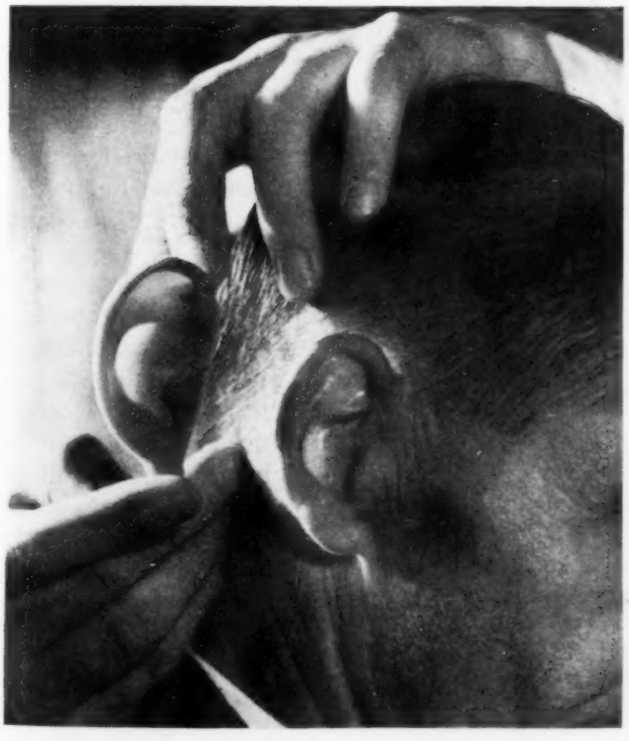
By **ARTHUR H. BULBULIAN**

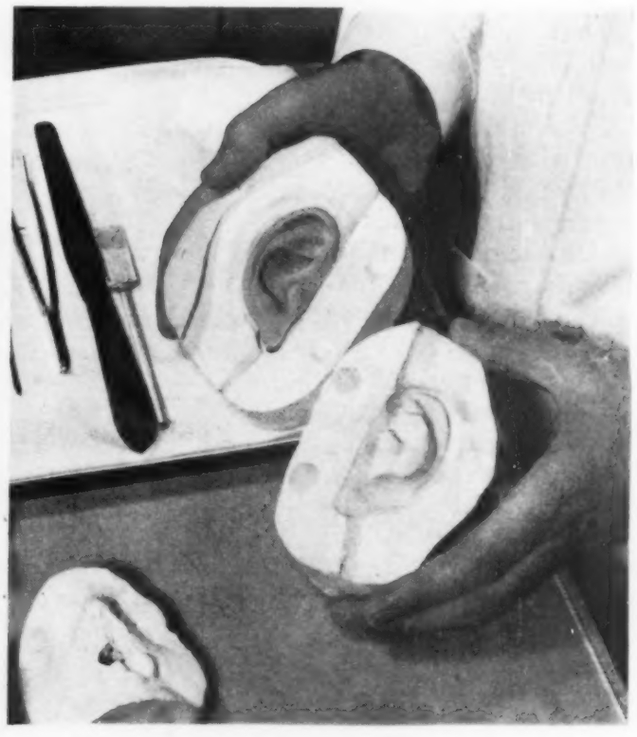
WHEN through an accident or disease an individual is disfigured by the loss of the nose or an ear, much embarrassment and psychic suffering are caused since no one wishes to look different from his fellow men. Obviously, such a person desires any help that will restore his normal appearance and enable him to meet people at home or on the street without the constant worry of being stared at.

In many cases the skillful plastic surgeon can rebuild a satisfactory nose by grafting living skin and flesh, taken from some other part of the body, over the mutilated region. It is more difficult, of course, to reconstruct a good ear by means of this type of plastic operation. At times, because of the patient's advanced age or poor health, or because of the necessity of waiting from the time a cancer is removed until performance of a plastic operation is considered to be safe, the surgeon will not want to operate. When these conditions are present, the man or the woman can be given an artificial nose or an ear that may be worn either permanently or only temporarily, depending on the circumstances.

Several years ago a school teacher had a cancer of the nose which necessitated almost complete removal. She would not have been able to carry on her work in the fall if something had not been done to restore her appearance. It was not advisable to reconstruct the nose by means of a plastic operation, for a delay of at least a year was necessary so that it could be certain that the growth would not return. Soon after removal of the growth, an artificial nose was made for her. This artificial restoration enabled her to continue her teaching until a plastic operation could be performed. Two years later, the artificial nose was replaced by tissue grafted from the skin and flesh of the forehead.

Another patient, a boy now 20 years old, had lost his right ear in an automobile accident when he was a child. Ever since that time he had become increasingly aware of the social and economic handicap of his injury. Circumstances in this case did not permit the building of an ear by a plastic operation. An artificial ear was made for him which he has been wearing satisfactorily now for more than two years.





New, rubber compounds are now available for making restorations; they are often used until plastic surgery is advisable. Dyes and fillers may be added to these materials so that the new structure will have the right color and substance; will not be readily distinguishable.

Another patient, a minister now 38 years old, lost his ear, also in an automobile accident, 22 years ago. Fortunately, the damage done was confined only to the external portion of the ear. The funnel-shaped opening leading into the inner part of the ear was not damaged, but the apparatus intended to collect and direct the sound waves, the outer ear, was missing. As a result of this injury, the man had some difficulty in locating the source of various sounds, such as train whistles and automobile horns. When he was supplied with an artificial ear, it not only improved his general appearance, which was important to him as a speaker, but it also enabled him to hear better and to localize the source of sounds more accurately.

Obviously, if such an artificial substitute is to be unnoticed, it must resemble as closely as possible a normal nose or ear. It must have the appearance of normal skin, with the color, flexibility and translucency of normal skin, and the line of junction between the patient's skin and the new nose or ear must not be too conspicuous. The new nose or ear must be made of some substance that will not irritate the skin and be a poor conductor of heat. It must also be inexpensive, light in weight, fairly permanent and unaffected by heat and cold. Unfortunately, no material has yet been found that perfectly meets these requirements. During the first World War, a number of severe facial mutilations of the soldiers were artificially repaired with vulcanite, a substance used in the making of dental plates. But this material lacks flexibility and translucency and cannot be made to resemble the skin accurately. Another material, also first used during the World War, was a composition of gelatin and glycerin. This material had the advantage of being flexible and translucent, but noses and ears made from it lasted only a few days, making its use unsatisfactory. Celluloid, copper, gold, silver and aluminum were also tried, but none of these materials proved entirely satisfactory.

A new compound made from a latex product to be used in this type of work was introduced only a few years ago. This material is a type of rubber which can be obtained in a creamy liquid form and which will remain so until it has been allowed to dry in air or in a plaster of paris mold. To this material can be added the fillers necessary to overcome its transparency and suitable dyes to give it natural skin color while the material is still in liquid form. After the liquid has been transformed to rubber by proper treatment, a substance is produced which looks like the tissues of the nose or ear and which has the color, flexibility and translucency of normal skin. With this material, it is now possible to make a nose or an ear which is not readily noticed unless it is examined carefully. But many difficulties in regard to color and translucency have to be overcome before lifelike texture can be obtained.

In making an artificial nose, the first step is to make an accurate plaster of paris cast of what is left of the patient's nose. A wax pattern of the type of nose that is desired is built on this cast. This pattern is fitted and a mold is made from which a nose is cast with the liquid rubber compound. A similar process is carried out in making an ear.

Artificial noses were, in the beginning, fastened to the bridge of a pair of glasses and some workers still prefer this method. Since these restorations can now be made much lighter, it is easy to cement them on with a liquid adhesive material made of mastic gum dissolved in chloroform or benzol. Sometimes, if the canal leading to the ear is large enough, a small tube can be made as a part of the artificial ear. This tube fits into the canal and keeps the artificial ear in place. Most of these appliances are easily removed at night and can be replaced again in the morning. Persons with these new artificial ears and noses can again go about their work and readjust themselves to their normal daily routine.

The Curse of Chemotherapy

It may be I'm a trifle mean,
Resenting sulfapyridine,

Which saves full many a gasping victim
When pneumococci've all but licked him.

My anger cannot be denied
At watching sulfanilamide

Subdue that germ which used to mock us—
The hemolytic streptococcus.

But these drugs make my clientele
As thankless as they make them well,

Unmindful of their obligations
For missing unknown complications.

I'm glad recovery's so quick,
But they don't realize they've been sick!

—Park J. White Jr.

BRUCELLOSIS

The history of a strange disease, isolated in many parts of the world, is recounted here by* S. M. RABSON. *Frequently found in farm animals, it is easily transmitted to man

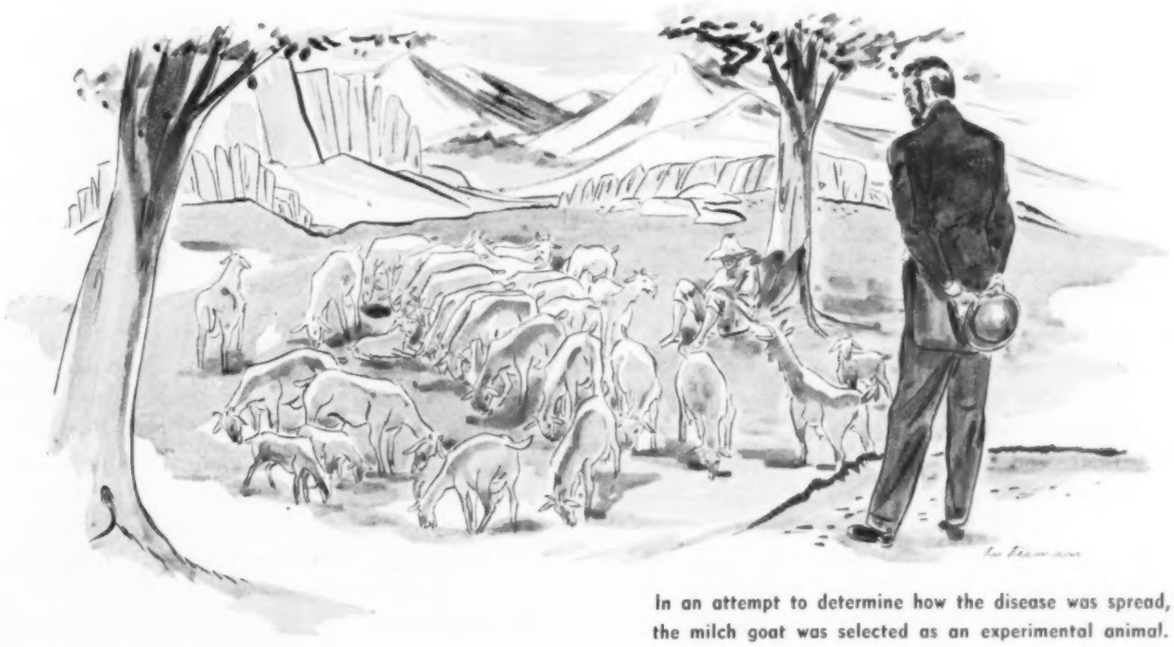
WHAT A HANDY WORD is neurasthenia! It covers a multitude of sins and symptoms. It is the recourse of the patient tired of it all. The medical dictionary defines neurasthenia as nervous prostration; depression due to the exhaustion of nerve energy. It is all these things, plus aches and pains and mental dejection.

Many neurasthenias are relieved by rest and analysis; but some are not. Because many cases which present complete signs and symptoms are not true neurasthenias, but are the result of a disease long known to medicine, and only a recent arrival in the vocabulary of the average medical practitioner. This comparatively new arrival is brucellosis.

The history of this strange illness, its course, spread, and the final determination of its causes, present one of the most fascinating chapters in medical progress.

The story opens more than fifty years ago, when David Bruce came to the island of Malta to serve his tour of duty as an officer in the army medical service of her majesty, Queen Victoria, who was then empress of India. Malta, not yet threatened by enemy aggression, was then, as now, an important way station on the sea-route to India. The island was not only valuable as a naval and merchant marine base, but also served as a half-way station where British regiments were sent to be acclimatized before being detailed to India for duty.

Acclimatization was successful. But a large number of the soldiers and sailors fell victims to a malady that was, and still is, prevalent on Malta. Even the Knights of St. John, who conquered the island in 1530, found the disease as well established there as on the island of Crete. The sickness was called Mediterranean fever, by some, because it was found in the Mediterranean area. It was called Malta fever by those who came to know it on that island, and by as many other names as there are geographic highlights in that part of the world.



In an attempt to determine how the disease was spread, the milch goat was selected as an experimental animal.

Naples, as is to be expected, was not slighted; an Italian honored the city by calling it Neapolitan fever. Later, a British army doctor, Hughes, suggested "undulant fever," a name by which it is still known to many physicians. Hughes maintained that his term described one of the most characteristic features of the disease, the undulations of fever so easily seen on the temperature chart of the patient. In unmistakably descriptive fashion he wrote that "undulant fever need not . . . be held to mean

Many British soldiers and sailors became ill with a strange disease when they were sent to Malta to become acclimatized.

a definite quantity or amount of intensity; but as in nature undulations vary from the gentle ripple or broader swell to the chopping wave or overwhelming breaker . . ." Hughes was well acquainted with the disease; his wife and two sisters suffered from the fever, and he, too, was forced to return home to England during the last year of his six year tour of duty.

The onset of brucellosis is usually insidious, with progressive weakness or lack of endurance the earliest, and often the most constant, symptom. Not infrequently the condition is diagnosed as influenza. Slight headache, loss of appetite and then fever appear. The fever is usually very irregular; it rises and falls, disappears and recurs, so that Hughes' "undulant" fever is readily suggested. There are no definite signs by which it can be diagnosed without laboratory aid, and the British Tommy's name for it, "slow continued fever," cannot be improved. There is profuse perspiration on the slightest exertion, chilliness, enlargement of the spleen and, later in the disease, rheumatic complaints and depression. The malady lasts for indeterminate periods of time, sometimes for years; acute complications interrupt its slowly depressing course. Anemia, loss of weight, weakness and wasting suggest tuberculosis or cancer. In most persons the disorder ends spontaneously and is followed by a long convalescence with striking weakness and apathy. Fortunately, the disease rarely appears in that rapid, acute, malignant form which was formerly confused with a severe siege of typhoid fever. Death comes within two or

three weeks to almost half the victims of this type.

David Bruce, a pioneer in the investigation of tropical diseases, lived in the stirring days when the researches of Pasteur, Koch, and others began the science of bacteriology. Bruce refused to accept blindly the views of his older colleagues that Malta fever was a variety of either typhoid fever or malaria, and hesitated to straddle the diagnostic fence with them by calling it "typho-malaria fever." He studied the disease among the living and at the autopsy table, and was convinced, as were some of his associates, that this was a separate disease and not a new form of a well-known ailment. The opposition was strong, motivated by "that common opposition to new theories," wrote Hughes, "which characterizes many who are unwilling to acknowledge truths which they have failed themselves to discover and demonstrate."

In 1886, while routinely staining microscopic sections of spleens from fatal cases, Bruce came upon "enormous numbers of single micrococci." Were these single micrococci the cause of undulant fever, or was the patient also carrying the germs of another disease? Pressing duties intervened, unfortunately, and it was not until May of the following year that he was able to continue his investigations. Working with Carruana Secluna, a native physician, he withdrew blood from the fingers of ten patients, cultured the blood, but failed to find the micrococcus he had discovered the year before. Later, however, Bruce and Secluna were able to implant the splenic tissues of a patient, who had recently died of Brucellosis, in a culture medium. Some of the bacterial culture tubes were placed in an incubator, while others were left at room temperature. At the end of the third day bacterial colonies, formed of the same coccus Bruce had seen the previous year, were seen growing in the incubated tubes. For the careful scientist, however, two cases are not conclusive, and Bruce persisted until he had recovered the same micro-organisms from six cases. Subsequently, he was able to recover this coccus from every fatal case.

But not until several years had passed was the causal relationship between organism and disease generally accepted, a lag not strange to the steps of human progress. The micro-organism was called "Micrococcus melitensis" (micrococcus of Malta) in honor of the island where Bruce first found it. Bruce erred in only one respect. What he had thought to be a coccus or ball-form of bacterium later proved to be a bacillus or rod-form which had seemed round because of its shortness. But it was not until 1920, almost thirty-three years after he had made the discovery, that Bruce was honored for his work. The little bacillus was then called "Brucella melitensis" as a tribute to him, and undulant fever technically labeled "brucellosis."

Finding the cause of the disease was, however, only the beginning. Much more fundamental in the fight for eradication was the understanding of how it was communicated. It was soon agreed that the infection was not spread by direct contact from man to man. This was repeatedly demonstrated in hospitals where patients with other illnesses occupied beds next to cases of brucellosis and failed to contract this disorder. In addition, there was no greater prevalence of brucellar disease among the hospital attendants than among the soldiers in the barracks. Stranger still was the fact that the incidence of cases reached a peak in July, August and September.

So baffling were these problems that the Mediterranean Fever Commission, composed of British army surgeons and Maltese physicians and headed by Bruce, was organized in 1904-1905 to determine how the disease was spread. For more than two years discouraging failure resulted. Every source previously suspected was investigated. Sewage, water, dust, air, and insects were subjected to painstaking laboratory analysis. But to no avail. Not one of these seemed to be the causative agent.

About this time Dr. T. Zammit, a Maltese member of the commission, seeking an animal for experimental purposes, happened on the ubiquitous milch goat which, then as now, inhabited Malta in large numbers and has always been the chief source of milk and meat.

There is, naturally, no purpose in experimentally infecting an animal with a disease germ unless the animal does not already harbor this germ or any other. In truly scientific fashion, therefore, Dr. Zammit proceeded to examine his goats thoroughly before using them. To his amazement, many of his goats were found to be infected with brucellosis. And simply enough, men were contracting the disease by using the milk and flesh of these animals. The source of the disease had been discovered!

Furthermore, the commission was able to demonstrate how easily the infection was spread among goats. Almost any simple method such as feeding, injection, or even rubbing the bacteria into the skin and eyes was effective. Unfortunately, these simple

methods of transmission have proven equally effective in man.

Why the incidence of this malady reaches a peak in the summer months has been answered only in recent years. J. B. Polding, a Maltese bacteriologist, explains that most goats on Malta kid in February, but are not used for commercial purposes for several weeks while the kids are suckled. Early in March, therefor, man is exposed in the greatest degree to the Brucella-infected goat meat or milk. After the organism enters the human body, at least three weeks pass before its effects are evident. On Malta, since the disease is widely prevalent, a degree of immunity or resistance to the disease exists among the natives. Consequently, their incubation period is probably longer and the onset more insidious, and usually they become ill sometime in April. But so subtle are the symptoms that it is only with the onset of the hot summer weather that the patient feels ill enough to visit a doctor or enter a hospital. It is, of course, only then that the public health authorities are notified. Naturally, records show the peak of the disease in early and mid-summer.

The story of brucellosis does not end on the island of Malta, but continues half-way around the world, where it is found among other animals and among humans who do not eat the diet of the Maltese.

In Scandinavia during 1897 Bernhard Bang, the Danish bacteriologist, was studying the problem of abortion or miscarriage in cattle. The spread of a contagious aborting disease among cattle had presented a serious problem for many years. In that year Bang succeeded in isolating a bacillus from stillborn, immature calves, with which he was able to reproduce the disease experimentally, thus demonstrating that this bacillus was the cause of the malady. In the years that followed, the germ Bacillus abortus was found responsible for contagious abortion of cattle throughout the northern hemisphere.

But not only cattle sicken with this disorder. Persons handling aborting cows sometimes develop all the signs and symptoms of brucellosis. Dr. Alice C. Evans of the United States Public Health Service sought to investigate the relationship of Malta fever to the American disease. She devoted her attention to the study of the micro-organism found by Bruce and that discovered by Bang. In 1918 Dr. Evans announced to the world that the two germs were virtually alike, differing only in slight degree, and that the American disease was the "undulant fever" of Malta. As a result, Bacillus abortus is now classified as Brucella abortus. It was soon found that not only may the Brucella melitensis be found in cattle, but that even swine are infected with a similar organism, Brucella suis. As a matter of fact, the prevalence of human brucellosis in the United States tends to follow the areas of hog-raising rather than those of dairying.

Since Bruce could not find the bacillus in the blood of a live patient but only in the spleen of a dead one, diagnosis of the malady must be aided by several laboratory tests. These include the agglutination test (clumping of germs in a fluid), the skin test, and the opsonocytophagic test. Opsonins are substances in the blood which render cells (cyto-) more easily destructible (phagic). These tests are both simple and interesting:

In resisting the inroads of many diseases, the body soon manufactures various anti-bacterial agents, one of which has the ability to cause the invading organism to be clumped or agglutinated. If the serum of the patient, containing agglutinins, is mixed with a known culture of Brucella in various dilutions, the organisms will be clumped or agglutinated in varying degree. If the phenomenon appears in the more diluted mixtures, it can be said with reasonable certainty that the patient is suffering, or has recovered, from infection with Brucella.

Bacteria, like all living substances, are composed of protein or albumin which is foreign to the human body. Sensitivity to foreign proteins is called allergy, one of the best-known of which is hay-fever. To test sensitivity to the foreign protein or allergin, the latter is introduced in varying dilutions into the skin of the patient. In proportion to the dilution of the allergin and the sensitivity of the patient, the body responds with a localized area of redness and inflammation. The allergin used in the test for brucellosis is brucellergen, a protein recovered from the dead organisms. As a rule, only persons actually harboring Brucella in their bodies and suffering from brucellosis react positively to this skin test. Should the skin be insensitive, however, as it is in some persons, the test is worthless. Similarly, if the patient cannot manufacture sufficient agglutinins, despite the presence of Brucella in his body, to cause clumping of the bacteria, this test, too, may be worthless.

If the first two tests prove ineffective, the third may indicate the presence of the marauding bacillus. This last, the opsonocytophagic test, devised by Huddleson of Michigan State College, uses the blood *(Continued on page 1019)*

Where Sheep Are Drifting By

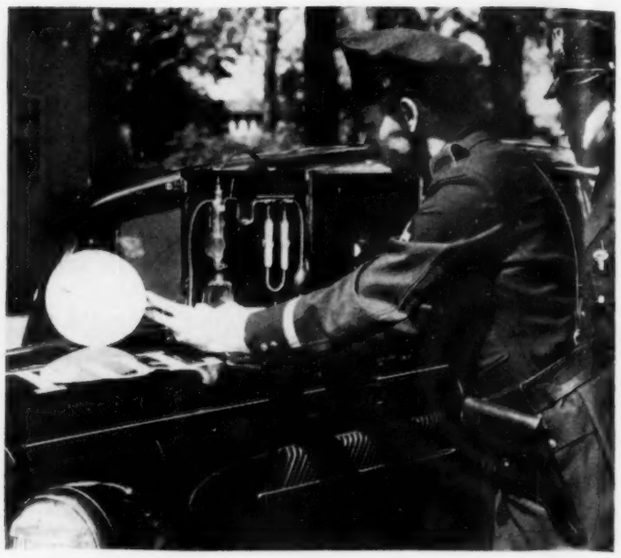
The singing hills of Spain no longer sing;
The hills of France are shadowed with despair;
And in the low countries there is no sadder thing
Than children frightened, hungry, everywhere.

Across the world the four dread horsemen ride;
Across the silent hills their steel hoofs ring;
The gentle once again are crucified. . . .
A sad world where no birds nor children sing.

Oh, God, we thank Thee for our own dear hills
Where sheep are drifting by in fleecy herds,
Where thru the virgin timber, laughter spills,
And peace is there, and song of mating birds.

—JOY O'HARA

Breath samples are taken at scene of accident.



Guesswork is eliminated; tests are made at once.

It wasn't my

THE MAN jammed the brakes down as hard as he could, but the jarring impact told him that his car had struck the child. Paralyzed with fear, he remained motionless in his seat, grasping the steering wheel and shouting, "It wasn't my fault! It wasn't my fault!"

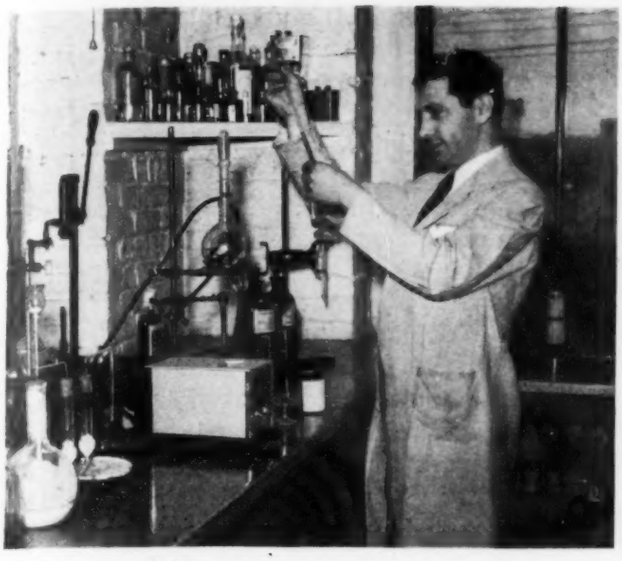
Later, the clanging ambulance was disappearing down the street carrying an unconscious form with a fractured skull and a twisted arm, but the driver was still hysterically shouting, "It wasn't my fault!"

Perhaps it really was not this man's fault. It is possible that the blame for the accident could be placed squarely on the child's shoulders. Witnesses of this particular case, however, assert that the driver apparently had plenty of time to stop his car after seeing the child, but that for some unknown reason did not do so until it was too late. This "unknown reason" is called the human factor, the cause of nine out of every ten road accidents.

To understand better what is meant by the human factor let us consider a hypothetical case. We shall assume that a stranger, picked at random on the street, is given a revolver and is told to shoot at a child on the opposite side of the street, as close as possible without actually striking him. If such an exhibition were real instead of presumptive, we, the public, would not permit its performance unless we were definitely assured that the man was thoroughly skilled in handling such a weapon and possessed no physical, mental or psychologic abnormalities which could in any way affect the keenness of his judgment. Yet, without a thought of the human factor, we give the same man *carte blanche* the privilege of shooting a ton of steel down the streets.

There is a difference in their size, shape and speed, but otherwise automobiles do not differ in their effect from bullets when they collide with human beings. Death is just as permanent when a body is crushed as when a bullet pierces the brain. There can be no compromise with death. At the moment this sentence is being read, some one in the United States is being struck by an automobile. Before this article is entirely read, some one will be killed. These statements are not idle fantasies conjured for the sake of startling the reader but are based on cold statistics which reveal that every ten seconds throughout the twenty-four hours of the day some person is hit by an automobile, and once every ten minutes one of these victims dies.

Statistics go further than that. They tell us, for example, that 30 per cent of fatalities are due to speeding; that 17 per cent are caused by driving on the wrong side of the road, and



Urine is analyzed; saliva may also be examined.

Alcohol in blood must be less than .15 per cent.

fault!

There can be no compromise with death,
says H. L. HERSCHENSOHN
Life is cheap fodder for the automobile

that 12 per cent are the result of reckless driving. This is interesting information, indeed. But here our statistics come up against a stone wall and stop. Why do they not go on and reveal to us why these persons speed, why they drive on the wrong side of the road, why they drive recklessly? If statistics are to be of service, they must be complete. After an accident occurs, it is not enough to say, "It happened because the driver fell asleep," while some distant statistician chalks a cross in the *Driver Fell Asleep* column. What figures are available to show why drivers fall asleep at the wheel? Is it really sleep or a loss of consciousness due to the influence of a drug, a disease or some psychologic factor?

So it wasn't his fault! But can the murderer show evidence that it really was not his fault? Can the state vindicate itself for having given this driver a license? Specifically, the blame for the countless thousands of deaths and maimed bodies rests just as squarely on the shoulders of those who issue licenses to automobile drivers as it does on the drivers themselves. Some states actually go to the trouble of giving the applicant a "driving test." Essentially, this test consists of determining the applicant's knowledge of traffic regulations and signals and his ability to start, turn, reverse and stop his automobile. That is all. Some states do not even go to that much bother. I secured my license to drive merely by paying a fee of 25 cents. No examination was required. Twenty-five cents! Life is cheap.

When a certain lax system is in force for a sufficiently long period of time without concerted opposition, it eventually becomes deeply grooved in a rut. Unfortunately, in this case, the rut is also the grave of innocent persons who are mowed down by lax systems of licensure. Nothing less than a dynamite idea can blow these systems out of their time-worn grooves. Simply, it is this:

> *No one should be granted a license to drive a motor vehicle unless he presents a physician's certificate, renewable yearly, to show that he is physically and mentally fit to do so.*

A medical department should be an integral part of every license bureau. Equipped with the latest laboratory devices, an accurate appraisal of those physical and mental conditions which are concerned with automobile driving can be made efficiently and quickly. Such a department will not be concerned with treatment but only with weeding out certain types of defective human "mechanisms," which are as potentially dangerous as automobiles with defective brakes and headlights.

When dynamite explodes, there is always a violent reverberation. One can hear the horrified, indignant, reactionary comments plainly. "It is just a racket!" "What will they think up next?" "How dare any one tell me I am not fit to drive an automobile?" But eventually the smoke clears away. The light of human reason finally breaks through, and every one wonders why such a law did not go into effect long ago.

In answer to those persons who think such a plan has only a mercenary interest, let it be known that it would be to the pecuniary advantage of the medical profession if there were more automobile accidents. This should be obvious. A physician, however, is more concerned with the prevention of disease and injury than he is ordinarily given credit for. It would be shameful if a person were so unfeeling as to place a dollars-and-cents value on any one's life. All the wealth on earth could not bring back to life the one whose loss is such a heavy burden to a loving family. It is not such a loss as might result from a protracted ailment in which the victim is given a fighting chance to survive. It is outright, ruthless and preventable slaughter.

Who among the populace will be affected if a physician's certificate is required for a driver's license? Persons suffering from the following conditions: night blindness, alcohol and drug addiction, acute attacks of pain, fainting spells, defective and uncorrected vision and hearing, insanity and such diseases which would make a driver unable to handle successfully any emergency.

Night blindness is now recognized as the cause of a great many automobile accidents. This condition is common in varying degrees among persons who are supposedly in perfect health. It is due to a deficiency of vitamin A in the diet. Even if a diet rich in cream, butter, fish-liver oils and other foods containing this vitamin is ingested, a deficiency may nevertheless occur in individuals who are growing rapidly, who are pregnant or who are afflicted with some type of infection or fever.

The head-light glare of an oncoming car takes away one of the visual elements of the retina on which images are "photographed" in the eye. It is one of the duties of vitamin A to regenerate this loss as quickly as possible. When there is an inadequate supply of this vitamin, the glare of each car light robs such a person of a fraction of the vision more quickly than it can be restored. After an hour or two of night driving, the skill of such a driver is dangerously crippled. An instrument which operates on the principle of measuring the minimum light visible is used to identify persons deficient in vitamin A.

Drivers should be given a medical examination immediately after an accident. This practice would weed out the so-called moderate drinker. Actually, he is more dangerous than an obvious drunkard, for the latter would not be able to handle an automobile at all, nor would any one permit him to do so. But the moderate drinker appears to be sober. He may, himself, be totally unaware of any unusual disturbance or sensation after taking a drink or two. Everything is all right until that crucial moment when a child runs in front of his automobile. He applies his brakes, but it is too late. The child is struck. What is the story behind this tragedy? The man was driving, let us say, at the moderate speed of 30 miles per hour. Each second he travels 44 feet. Ordinarily, it takes one fifth of a second to react to what is seen or heard. Under the influence of a single alcoholic drink this reaction may be slowed down to two fifths of a second. This means that by the time the man who had taken only one drink made up his mind to apply the brakes, he had traveled 9 feet farther than he would have without the drink. Within those 9 feet was the child—and death!

After an accident has occurred, the frightened driver, even if intoxicated, may become sobered by the realization of what has happened. But chemistry is not fooled. An immediate examination of the driver's blood will reveal the presence or absence of alcohol within his system. If alcohol is found, no matter how trivial the accident may be, the right to drive an automobile should be denied him for a certain period of time, depending on the circumstances of the case.

If medical examinations accomplish nothing else but a sharp curtailment of drunken driving, they will be well worth the while. They will, however, accomplish far more than that. There are many hundreds of persons who are at this moment driving automobiles while under the influence of narcotics. These persons are emotionally unstable and should not be entrusted with the responsibility of propelling a piece of heavy machinery, which has no speed limit except that which is conceived in the distorted mind of the operator at the controls.

If a person who has an ailment, which is characterized by sudden attacks of pain, wishes to risk his own life on the public streets and highways *(Continued on page 1028)*

The Newer Concepts of Meat in Nutrition

Meat . . Nutrition . .

and Vigorous Health

BUOYANT, vigorous health is largely a matter of nutrition, of the food we eat. For the healthy person, the maintenance of good health is to a large extent a matter of sane living and good eating habits.

The quantity of the food eaten has comparatively little to do with it. It must be sufficient, of course; too much may prove as harmful as too little.

Of real importance is the *kind* of food eaten; the proper balance not only of protein, carbohydrate, and fat, but also of the all-important vitamins and minerals.

Improperly balanced meals—meals too rich in carbohydrate and fat and too poor in protein, or deficient in essential vitamins, or lacking in the needed minerals—inevitably lead to serious impairment of health. In the child, they may interfere with proper growth; in the adult, a number of vital organs may become affected; in the aged, the damage may even be more serious.

Because meat—one of the few foods that can be eaten several times daily—is so rich in adequate proteins; because it provides the all-important thiamine (vitamin B_1), riboflavin (vitamin G or B_2), and the pellagra-preventive vitamin; and because it contains iron and phosphorus in liberal amounts, the science of nutrition has long recognized the important role of meat in our everyday diet. Meat is truly a *food essential.*

And best of all, virtually all meat and all meat products, even the most inexpensive cuts, provide these food factors. It is fortunate, also, that all meats can be so easily prepared in so many flavorful, appetizing, appetite-stimulating ways.

ACCEPTED AMERICAN MEDICAL ASSN. Council on Foods

The Seal of Acceptance denotes that the statements made in this advertisement are acceptable to the Council on Foods and Nutrition of the American Medical Association.

American Meat Institute
CHICAGO

THE LITTLE BOY WITH

Growing Pains

TOO MANY CHILDREN who have "growing pains" pay dearly for them later in life. Actually, these vague aches have nothing to do with growth. Although popularly referred to as "growing pains," they are frequently due to unrecognized rheumatic fever.

Many youngsters, whose parents misunderstand or neglect these symptoms, grow up to suffer or die from resultant, but unsuspected, heart damage. Therefore, "growing pains" should always be given immediate medical attention.

▶ Most attacks of acute rheumatic fever are easily recognized. The most striking symptoms, usually appearing after a sore throat or tonsillitis, are: pain, stiffness, swelling in joints and muscles, with the pain often travelling from joint to joint.

The onset, however, may develop insidiously, revealing its presence by such symptoms as: rapid heart; fever, which may be slight; pallor; loss of appetite, weight, vigor; fleeting muscular aches.

▶ Three-quarters of those attacked by rheumatic fever are between the ages of 5 and 30—and of these the majority are between the ages of 10 and 15. Its most dangerous feature, particularly if not recognized and treated promptly, is that it often does permanent damage to young hearts. Rheumatic heart disease *tops all other illnesses as the cause of death among children of school age.*

An attack of rheumatic fever may last for many months. Unfortunately, it predisposes the patient to future attacks, often brought on by grippe, colds, sore throat, or other respiratory troubles. It also commonly infects more than one member of a family.

▶ Anyone who has rheumatic fever must —for the sake of his future health—stay in bed under the doctor's care until long after all fever and pain have disappeared, and until the doctor gives permission to get up, however "well" the patient may feel or look. It is vital for a long time afterward to play safe with that threatened heart by being extremely careful about exercise or exertion.

For further information, send for Metropolitan's free booklets, "Protecting Your Heart" and "Rheumatism." Write today to Dept. 1140-Z.

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BROKEN BONES

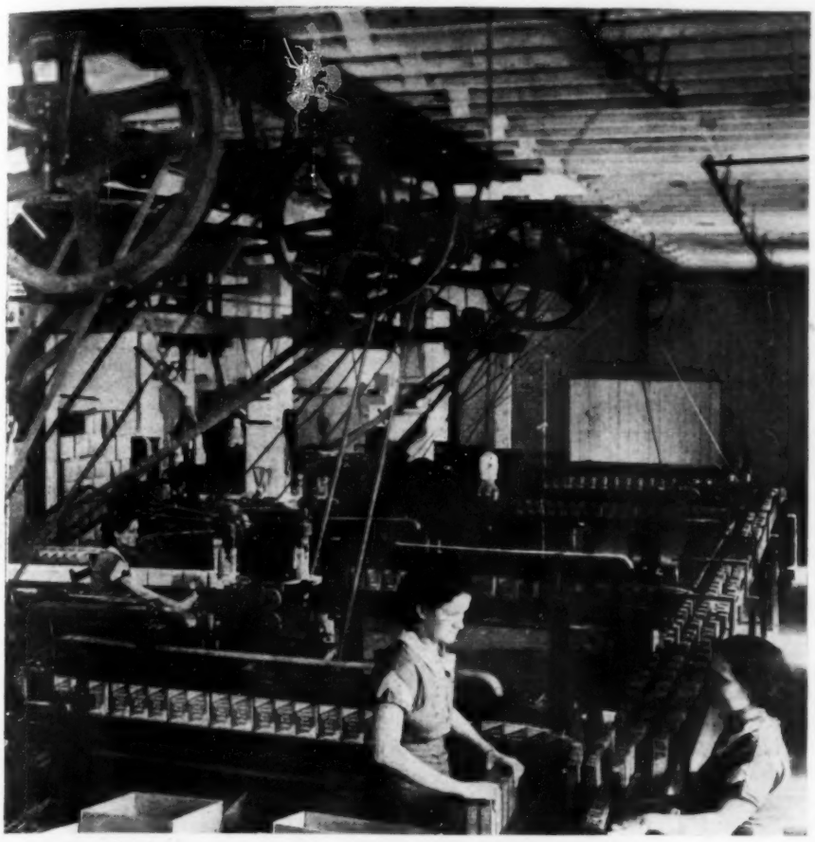
(Continued from page 978)

treatment in order to stimulate the bone to grow together normally.

Every effort is made in modern treatment to keep the individual with the broken bone active and as little restrained from normal life as possible. This can be accomplished in a large proportion of breaks by well made dressings of plaster of paris which hold the bone quietly and firmly, without pressure, during the healing period. The dressing or splint is applied after the bone is set in such a manner as not to interfere with use of the limb any more than is absolutely necessary. For a broken wrist, the splint must enclose forearm and wrist to the base of the fingers, but the fingers can be left free for natural movement. Similarly, in many fractures of the leg the use of iron stirrups or rubber heels, set into the plaster with bar supports up the sides of the leg, permits the injured person to walk about or attend to his daily business without pain and without jeopardizing the position of the bone fragments or permitting motion detrimental to their normal union. Such exercise and use of the limb shortens convalescence, restores muscle volume and helps stimulate blood circulation.

Special diets are of no practical value to hasten bone healing and deposit calcium or lime salts in the callus of a person in average health. A general, mixed diet, balanced with vegetables and milk or its derivatives is usually sufficient to maintain a normal amount of calcium in the blood. Certain conditions of disease or anemia may be corrected by the administration of proper medicines, various vitamins, or a generous and varied diet.

A seemingly simple and quickly acquired break in a bone involves a rather complicated series of events within the tissues of the individual and a long repair process, gently but securely administered will; in most instances, restore the parts to normal in due time. But above all, employment of hospital facilities and the experience of the physician are necessary requirements in handling broken bones.



The nutritional value of rice, like that of other cereal grains, is altered considerably by milling.

RICE PRODUCTS

RICE is Asiatic in origin and in the Orient rice is the principal cereal cultivated and consumed. Although about 97 per cent of the world's annual rice crop is produced in the Far East, some is produced in the United States, in Southwestern Louisiana, Southeastern Texas, Eastern Arkansas and the Sacramento and San Joaquin valleys of California. Of these places, Louisiana produces about two fifths of the commercial rice crop grown in the United States.

The per capita annual consumption of rice in the United States is only about 6 pounds a year, whereas in India, Chosen, French Indo-China, Java, and the Philippines it is over 200 pounds and in China, Japan, Taiwan and Siam from 300 to 400 pounds. These high values amount to about a pound each day for each person, so it is evident that in some localities rice constitutes the principal item of the diet.

Rice differs from other grains in that the kernel is surrounded by a siliceous palet, which is so harsh and indigestible that it is unsuited even for animal food. In the United States this harsh palet is removed from the rice kernel by a harvesting machine which cuts the rice and thrashes the rice kernel from its palet. The rice kernel leaves the harvesting machine with its several branny layers intact, and is called rough rice or "paddy."

In the milling process rough rice is cleaned and then conveyed to large, revolving hulling-stones which remove the hull or outer bran layer. From the hulling stones the mixture of hulled rice, rough rice and hulls passes to the paddy machine, which separates the hulled from the unhulled kernels. The unhulled kernels go back to the hulling stones. Hulled rice at this stage of the milling process is known as brown rice. It is packaged for marketing in this form or is conveyed to other machines where it receives further treatment to produce polished or white rice.

Brown rice is a product which has been cleaned and dried to a moisture content from 11 to 12 per cent. The removal of excess moisture is intended to keep the bran layers from becoming rancid and thus insures better keeping quality.

The brown rice that is to be further milled into white rice is sent to a second set of hulling stones where the remaining bran layers and most of the germ or embryo are removed. The rice is then passed to the brush machine which removes any particles of bran still adhering to the kernel and some of the outer starch cells. When all of the bran is removed, the rice is conveyed to a machine where it is coated with a mixture of corn sirup and talc. The amount of corn sirup and talc used (about 1 part of talc and 2 parts of corn sirup to 1 thousand parts of rice) is not sufficient to alter appreciably the composition of the rice. The coated, polished rice is separated into grades, weighed and packaged.

Rice bran and germ, removed from the rice kernel during the processes of hulling and polishing, are called rice polishings. This material is a valuable source of vitamin B_1 and is used for special dietary purposes, or sold as a feed stuff for farm animals.

The nutritional value of rice, like that of any other cereal grain, is altered considerably by milling processes, which partially or completely remove the outer layers, richer in mineral elements and vitamins than the starchy endosperm. The approximate composition of brown rice, white rice, puffed rice, rice flour, rice flakes and wild rice are shown in the accompanying table.

Vitamin B_1 is abundantly present in the germ and bran layers of food grains, while the starchy endosperm contains it in much smaller quantities. The relationship between the consumption of large quantities of white rice and beriberi, a disease caused by a lack of vitamin B_1 (thiamin) was firmly established 25 years ago.

The lowering of the vitamin B_1 content which takes place when

My doctor told me to drink milk, but I despise milk and I told him, "Anything but milk!"

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PROXIMATE COMPOSITION OF RICE PRODUCTS

(Analyses Submitted by Manufacturers)

	Brown Rice	White Rice	Puffed Rice	Rice Flour	Rice* Flakes	Wild Rice
	per cent	per cent	per cent	per cent	per cent	per cent
Moisture	11.1	11.3	3.8	9.3	3.1	9
Protein	7.3	6.1	6.3	6.7	8.5	15
Fat	2.3	0.6	0.2	0.7	2.0	0.8
Crude fiber	1	0.3	0.6	0.6	0.6	4.4
Carbohydrate	77.3	81.5	88.8	81.9	81.4	1.6
Ash	1	0.4	0.3	0.8	4.3	1.5
Vitamin B_1	60†	‡	§	‡	‡	#

* Rice flakes, a toasted flaked cooked brown rice flavored with sugar, salt and malt sirup.

† International Units of vitamin B_1 in 100 grams (3½ oz.) of rice; this is about ⅓ as much vitamin B_1 as in natural whole wheat and ⅕ as much vitamin B_1 as in oatmeal.

‡ Contain insignificant amounts of vitamin B_1.

Vitamin B_1 content not reported.

§ Contains insignificant amounts unless fortified.

rough rice is milled has become such a serious health problem in countries like India where white rice is the principal food that certain nutritional authorities have recommended that the milling of rice beyond a minimum content of 50 international units of vitamin B_1 per 100 grams of rice be prohibited by legislation. It will be noted from the table that a vitamin B_1 content of this order corresponds roughly to that of brown rice.

Brown rice, like whole wheat flour, does not keep as well as white rice and for this reason it may cost slightly more. But since brown rice contains four times more vitamin B_1 and three times more minerals than white rice, its greater nutritive value more than balances its extra cost. For this reason, brown rice should be a preferred product.

How to gage the amount of cooked rice from a given quantity of uncooked rice is a question that has baffled many a beginning cook. A general rule is that 1 cup of uncooked rice will equal about 3½ cups of cooked rice. One method of cooking rice specifies 2 quarts of boiling water and 2 teaspoons of salt for cooking 1 cup of rice.

ACCEPTED RICE PRODUCTS

The following brands of rice and rice products have been accepted by the Council on Foods of the American Medical Association and are described in the book "Accepted Foods and Their Nutritional Significance" published by the American Medical Association.

Cream of Rice; a mixture of heat-treated granulated polished rice and powdered skimmed milk (4.76 per cent by weight).

Comet Brown Rice; heat-treated, hulled, unpolished rice.

Heinz Rice Flakes with Rice Hull Cellulose; a mixture of toasted flaked cooked polished rice and rice hull cellulose (7 per cent by weight of milled rice) made from treated rice hulls, with added salt, yeast and milk sugar.

Quaker Puffed Rice; dried, puffed, cooked, polished rice.

White House Natural Brown Rice Flakes; toasted, flaked, cooked, brown rice, flavored with sugar, salt and malt sirup.

White House Natural Brown Rice; heat-treated, hulled, unpolished rice.

White House Rice; heat-treated, polished rice.

White House Ricena; same as White House Brand Rice except that the broken grains are crushed to make Ricena.

White House Rice Flour, ground and bolted, polished rice.

FALSE NOTIONS ABOUT BREAD

THE VALUE of bread as a good foundation for well-balanced nutrition is recognized by physicians and scientists. But—

There seems to be a regrettable tendency in some quarters to blame most defects of the diet on bread.

It would seem equally unreasonable to condemn milk because it provides so little iron and vitamin C; to decry meat, because it lacks calcium; or green leafy vegetables and fresh fruits, because they yield so few calories for food-energy; or butter, because it has no protein; or carrots, because they are deficient in linoleic acid; or cod liver oil, because it does not contain vitamin K.

All of these foods, like bread, are wholesome, desirable components of the well-balanced daily diet of the normal person. Like bread, each contributes certain necessary nutrients. Like bread, none is perfect from the standpoint of human nutrition.

The chief function of bread in the diet is as an economical source of essential food energy, and as a good source of acceptable proteins. Bread is, in fact, preeminent as a good foundation for the protective foods that are the richest sources of vitamins and minerals.

Much of our modern white bread is now enriched with vitamin B_1 (thiamin), and in other vitamins and minerals. Such restoration is added reason for the liberal use of this incomparable source of food-energy, the most immediate need of the body.

DEPARTMENT OF NUTRITION

AMERICAN INSTITUTE OF BAKING

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FRUIT in the DIET

By DORIS W. McCRAY

THE RULE that "if a little is good, more is better" applies, with reservations, to the serving of fruit.

"There is a distinction between adequate and optimal nutrition," according to Sherman, who says, "starting with a dietary already adequate according to current standards, we may, by improving the diet, induce a higher degree of health and vigor. The optimum state of nutrition is characterized by evidence of higher vitality, the prime of life is prolonged and evidence of old age delayed."

"Preservation of the characteristics of youth" is the apt phrase used by McCollum and Simmonds to summarize the nutritional advantages of a liberal use of the protective foods, mainly fruits, vegetables and milk which serve to make good the deficiencies of breadstuffs, meats, sweets and fats. We are familiar with the recommendation that one fifth of the money spent for food be used for fruits and vegetables, in the low-cost food budget and that, no matter what the level of expenditure, at least as much be spent for fruits and vegetables as for meats and fish.

Fruits and vegetables are not valued for their protein and energy values, but for their vitamins and minerals.

Vitamin C is most outstanding in fruits. It is the anti-scorbutic vitamin commonly considered the main reason that orange juice is given to little babies. New reasons are constantly being discovered for needing this vitamin in the diet. All fruits are important sources of vitamin C, especially oranges, lemons and grapefruit.

Fruits contain important amounts of vitamin B_1, the anti-neuritic vitamin, and vitamin G (called vitamin B_2), which protects against pellagra and is so important in preserving the characteristics of youth.

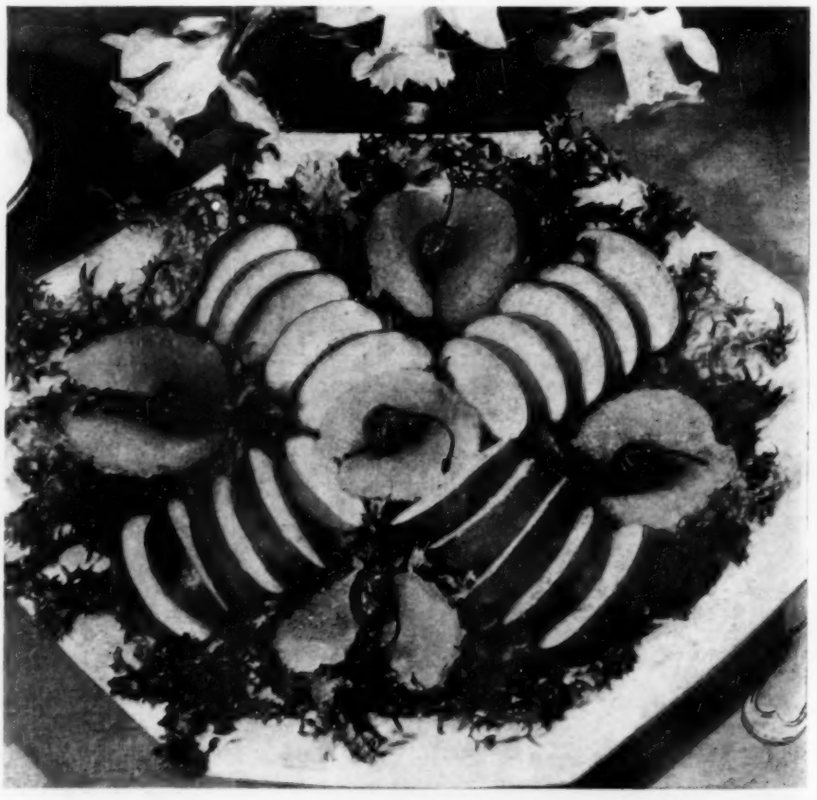
Vitamin A, needed for tooth formation, for resistance to disease, and to prevent night blindness, is found more abundant in apricots and prunes than in some of the other fruits. It is abundant in green, leafy vegetables and yellow sweet potatoes, but not so plentiful in bleached leaves and white potatoes. While fruits are valued somewhat for this vitamin, it is not their most abundant vitamin.

The minerals in fruits are important. Because of their high water content and low proportions of protein and fat, fruits can be added to the diet without replacing the staple foods of high caloric and protein value and they supply valuable iron and copper needed in preventing anemia.

Phosphorus, potassium and other minerals found in fruits are needed by the body for building and maintaining the teeth, bones, blood and nerves. Fruits and vegetables balance meals containing meats and cereals, rounding out the menu from a nutritional standpoint.

Mid-morning lunches of fruit juice for school children have shown good results in the same manner as milk. Which is more advisable could be decided only after a study of the entire diet, but the amount given is small in either case.

The vitamins and minerals of fruit are soluble in water and are contained in the juice. The pulp consists of cellulose which is not absorbed by the blood stream but provides bulk and has a laxative tendency. The juice of prunes also contains a laxative substance in addition to the effect of the pulp. The laxative effect of fruits is more gentle and the fruits are not gas-producing as are some vegetables, however both fruits and vegetables as well as milk and dextrin tend to result in a superior condition of intestinal hygiene. If the laxative effect of the fruit is desired, the amount eaten can easily be increased by the normal person. Fruit, in a diet for weight reduc-



Fruits contain natural sugars, less sweet than table sugars, but much more easily assimilated by the body.

tion, is bulky and satisfying and the person will be supplied with valuable minerals.

Fruits owe their tremendous appeal to volatile flavors developed in the fruit as it ripens. The odor of hot pineapple juice, fresh orange juice, or a freshly opened can of pears is something to enjoy and to remember. Part of the enjoyment of flavor lies in awareness of the odor. The color adds to pleasure, and the smooth, clean taste to the tongue is always welcome. Fruits contain a natural fruit sugar all ready for the body to assimilate quickly. The sugar in fruits is less sweet than that in the sugar bowl on the dining table which blends well with the fruit flavor. The fruit acid has a special appeal. The citric acid of citrus fruits, the tartaric acid of grapes, and the other fruit acids, sour to the taste, are useful in furnishing contrasts in the menu, such as applesauce with pork, prunes with roast beef or pineapple with lamb chops.

The texture of the fruit is enjoyed. Notice the intricate design that Nature has executed in the pulp of an orange. Fruit fits into any course of the menu, into any meal or refreshment served during the day or evening.

Chilled Fruit Juice

Chill the juice in the refrigerator or in a container set into a bed of cracked ice, rather than diluting the juice by adding the ice directly.

For sweetening, prepare a sirup. Cook together one cup of sugar and one cup of water until the sugar is completely dissolved; chill and have ready to use. Such a sirup gives lemonade a smoother, mellower flavor which blends better with the fruit acid than does sugar added and stirred to dissolve it.

Fruit juices you will enjoy are: Freshly extracted orange juice, grape juice, pineapple juice, grapefruit juice, apple juice and tomato juice.

Serve the fruit juice for breakfast, lunch or dinner as first course, or serve as refreshment between meals or at bed-time.

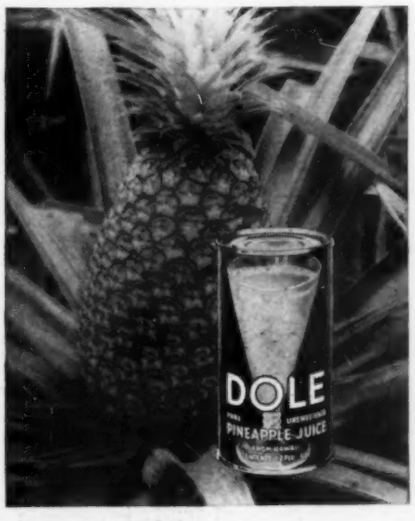
Fruit Appetizers

(to serve before dinner, with chilled fruit juice)

Prepare any desired fruits, stewing or removing pits, drain from juice, and fill with cream cheese,

1 Here in sun-drenched Hawaii grow the finest, most delicious pineapples in the world. On the Dole plantations pineapples are picked only at the peak of sun-ripened perfection —when they are richest in flavor and nutritive elements.

THERE IS NOTHING ADDED TO DOLE PINEAPPLE JUICE



2 Dole Pineapple Juice is *pure* fruit juice—undiluted and unsweetened—and packed without preservatives. The exclusive Dole Fast-Seal Vacuum Packing Process retains to a high degree the fresh fruit goodness.

3 Tempting to healthy appetites and easily assimilated, Dole Pineapple Juice is a recommended beverage for adults and children. It is high in quickly-available food energy, potentially alkaline in reaction, a good source of vitamins B and C, and contains vitamin A.

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More than thirty outstanding authorities in the fields of medicine, pediatrics, chemistry, biology and nutrition have given their best thought to the compilation of this book. Being technical, it obviously is not "for light reading", but will prove of interest and value to dietitians, nurses, teachers of home economics and health, and all scientific-minded persons who take their vitamins seriously.

PARTIAL TABLE OF CONTENTS

Vitamin A
Chemistry, Physiology, Pathology and Therapeutics; Methods of Assay and Food Sources; Requirements.

Vitamin B
Complex; Thiamin (Vitamin B_1); Riboflavin—Physiology, Pathology; Pellagra.

Vitamin C
Deficiency; Dietary Sources; Requirements; Pharmacology and Therapeutics.

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Vitamin E and Other Factors

637 pages, 8½ x 5½ inches. Red imitation leather binding. Price $1.50

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decorate with a dash of paprika. Eat with the fingers, as appetizer or hors d'oeuvre.

Fruits: Dried figs, stewed prunes, apricots, peach halves (canned or dried peaches stewed), canned Bing cherries pitted, dried pears softened in steam, or pineapple wedges.

Filling: Cream cheese, softened slightly in a warm kitchen, pressed through a pastry tube into cavities of fruit. For variety, use pimento cheese, various cheese spreads, or cottage cheese with chopped olives.

Garnish: Paprika, chopped nuts, sliced celery, sliced pickle or sliced red radish.

Fruit Soup

A tasty soup to serve in hot weather consists of diluted fruit juice, thickened slightly with arrow root. Garnish with a slice of lemon and a bit of parsley. Allow two tablespoons arrow root for three cups of liquid. Use fruit juices such as mixed pineapple and orange juice with a dash of lemon juice, sugar and salt. The arrow root makes the soup more transparent than cornstarch. Add a half teaspoon of butter before chilling. It is better to thicken plain water, remove from the stove and add an equal amount of fruit juice, rather than to dilute the juice and then cook it. The fruit soup may be varied in color and flavor. Serve with crisp crackers as first course of dinner.

Chopped Fruit Cocktail

The canned fruit cocktail is delicious, or can be prepared as a cocktail with any fruits available. Do not sweeten the fruits; add a dash of lemon juice or provide a section of lemon to squeeze over them. Oranges and other diced fruits are suitable.

Halves of grapefruit can be prepared as for breakfast, but not sugared, since some persons prefer salt. Garnish with a fresh strawberry and a mint leaf or a spoonful of currant jelly, and serve in place of a chopped fruit cocktail.

Fruit Salad

A salad made of fruits is suitable for luncheon, for light refreshments, or a separate course for dinner. When a fruit salad is served with the main course of a dinner, it should be accompanied by a French dressing or a light, tart salad dressing and the fruits should not be sweetened.

Some fruits may be mixed with dressing, but it is particularly attractive to arrange the fruits on lettuce so that each separate color is seen. Such a salad may form the main dish of a luncheon, with coffee or milk and rolls and an assortment of cheese to complete the meal.

Fruit Pudding

The possibilities of fruit puddings are endless, since one fruit may be used in place of another. Pineapple tapioca is a change from peach tapioca. Apricot shortcake is fully as good as strawberry shortcake. Cherry cobbler can be varied by using canned raspberries instead of cherries. Orange charlotte is equally as tasty when grapefruit instead of orange juice is used. Prunes can substitute for almost any fruit in any recipe, although they require less sugar for sweetening. Fruits may be served plain, with cooked rice as dessert.

Selecting and Preparing Fruits

When possible, purchase bananas by the "hand" or cluster; put them into a bowl in a warm room and use them as they ripen to the desired degree. When tipped with green or all yellow, they are firm enough to cook or bake, but to use raw, they should be flecked with brown. Then the starch has turned to sugar and their flavor is mellow and sweet.

A green color on lemons and oranges is not undesirable, since their ripeness is judged by sugar content at the time of picking and they keep well until used. Each season there is some variation in the size that proves most economical for salad, and the best size for juice, because the crop varies. The varieties that contain fewer seeds are more convenient.

Fresh orange juice has a much finer flavor than orange juice that has been prepared ahead of time, because oxidation occurs which impairs the flavor. For salads, one of the tastiest ways to prepare oranges is to pare thickly, like apples, then cut toward the center with a knife, removing each section of the pulp as a single piece free of membrane.

Grapefruits should not be prepared ahead of time, because they become slightly bitter. For oranges thus served, provide fruit knives, possibly fruit forks, and paper napkins. Tangerines are popular be-

cause they are so easy to peel and eat at the end of the meal.

A ripe pineapple, in its native Hawaii, is plump and mellow as a watermelon and does not have the acrid flavor of fresh pineapples on the market in this country, although the latter are tasty when allowed to stand overnight with sugar. Canned pineapple is available as juice (sweetened or unsweetened), crushed, tidbits (about 56 small pieces cut from slices in a size 211 can), or in cubes or "gems" (which average about twenty-five in a size 211 can), or in slices. The broken slices are usually cheaper and available in the size 2½ can. Most people do not realize that they can commonly find sliced pineapple in four different, small sizes, as well as the number 10 can which contains fifty small slices and five cups of sirup. This size is practical for the large family or even the small family with a good refrigerator and with large pineapple appetites.

The four sizes referred to are as follows:

Size No. 1 Flat containing 5 small slices and ⅓ cup sirup; net weight 9 ounces. Each slice measures approximately 3⅛ inches in diameter, $^{21}/_{64}$ inch in thickness, with core diameter of 1 inch.

Size No. 1¼ containing 4 large slices and ½ cup sirup; net weight 15 ounces. Each slice measures 3¾ inches in diameter, ½ inch in thickness with a core diameter of $1^{3}/_{16}$ inches.

Size No. 2 containing 10 small slices and ¾ cup sirup; net weight 1 pound 4 ounces. Each slice measures 3⅛ inches in diameter, $^{25}/_{64}$ inch in thickness with core diameter 1 inch.

Size No. 2½ containing 8 large slices and 1 cup sirup; net weight 1 pound 14 ounces. Each slice measures 3¾ inches in diameter. ½ inch in thickness with core diameter $1^{3}/_{16}$ inches.

This information will be found useful in planning the number of servings, and the size of salad plate.

Pineapple spears or fingers are packed in a No. 2 XT size can containing twelve large spears and ⅔ cup sirup; net weight 1 pound 9 ounces. They measure 5 inches in length and they are especially suitable for use as hors d'oeuvres since they may be sprinkled with chopped nuts or parsley or spread with cream cheese. If served on an individual plate, each spear may be cut diagonally, ready to eat with a fork.

Other canned fruits are often labeled as to the number of items, such as peach halves, as well as the number of cupfuls and the net weight. Some brands provide, on the label, a description of the grade or quality and the sirup used (heavy, medium or light) or whether they are water-packed.

The sirup or juice from fruits has many uses in puddings, gelatin desserts or pudding sauces, as well as the usual method of serving the juice with the fruit.

Dried fruits are naturally sweeter than fruits picked for canning with a sugar sirup added. In some cases the sugar content of fruit to be dried is 30 per cent higher than fruit from the same vine or tree harvested for other purposes. Thus the dried fruit needs little or no sugar added when it is cooked; but this is a matter of taste. It is not necessary to soak dried fruit, and more of a meaty, chewy texture results, as contrasted to the puffy, watery taste of the fruit that is soaked, the latter tending to have greater bulk and perhaps a more flavorsome juice. Mixed, dried fruits are covered with water and cooked 35 to 45 minutes according to taste. Prunes are cooked 45 minutes to an hour, depending on the quality and dryness of the prunes. If they seem quite dry, they will require the longer cooking period. This depends upon the humidity and temperature of the storage room in which they have been stored. When dried fruits, as purchased, seem quite moist and juicy, they require less cooking. They should be rinsed well before cooking.

To sieve dried fruits, cook slightly longer than usual, remove the pits and put through a coarse colander or sieve. Use for any of the fruit whips, gelatin or tapioca desserts. One cup of uncooked dried fruit will yield about 1 cup of fruit puree.

To prepare fruits to serve as a confection, soften them slightly by steaming a few minutes, or cover with boiling water, or wrap in a damp towel until they have softened. Then dip in frosting, fill with chopped nuts or roll in granulated sugar or eat "au naturalle."

The family will always cheer the appearance of an extra bowl of fruit.

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TOAST

By JAMES A. TOBEY

GOOD TOAST has been called bread at its best. This characterization is an apt one, for epicures and ordinary eaters agree that crisp, golden-brown toast is one of the most appetizing and satisfying of foods. It is so popular in this country, in fact, that approximately one third of our bread is consumed in the form of toast.

Nearly 150 million slices of toast are devoured every day by the American people because they enjoy its taste and flavor; because it is easily digestible; because it is nourishing and wholesome, and because it goes well with other foods. The dietary and gustatory qualities of toast are, however, enhanced when the right kind of bread is properly toasted.

Like most other culinary operations, the correct toasting of bread is something of a fine art. All bread can, of course, be toasted but certain types of bread will invariably produce better toast than others. The method of heating is likewise significant if you wish to achieve the best flavor in toast, and the most desirable conversion of its starch into simpler, more palatable, and even more digestible carbohydrates.

The ideal loaf for toasting is light-crusted white bread that is made with liberal amounts of milk solids, shortening, and sugar, as well as with the usual quota of

His MILK TEETH are *worth a million*

PEOPLE call them "temporary" teeth —and that's true, in a way. In time they'll fall like autumn leaves. But if you suppose that "temporary" means that it makes no difference *how early* they fall—well, that's another story!

Those tiny milk teeth are worth a million to your boy or girl. If lost too soon, the *permanent* teeth may be grievously affected—may come in all helter-skelter, instead of in even, disciplined ranks, as you *want* them to come, for your child's future health, good looks, success, and happiness.

Your dentist is *hoping* for the chance to keep those milk teeth whole and sound as long as they are needed. He wants to save them by filling even the tiniest cavity. It's money well invested —when youngsters start seeing the family dentist regularly and often, as soon as they can walk!

And then—there's *diet*. The teeth are part of the bony structure of the body. *Two minerals*—calcium and phosphorus —are as essential in building fine, sound teeth as they are in building strong, straight bones. *One vitamin*—"sunshine" vitamin D—has a special part to play in insuring the efficient utilization of those materials. And Irradiated Carnation Milk is a splendid source of those minerals and that vitamin.

This milk, accepted by the medical profession as one of the safest, most nourishing, and most digestible of milks for bottle-fed babies, is *just as valuable* for toddlers, and for growing boys and girls, all the way through college. . . . A 40-page, color-illustrated booklet, "Your Contented Baby," tells how helpful Carnation Milk is, from bottle days on. You'll value its practical hints and appetizing recipes. Write for your free copy. . . . *Carnation Company, 701-L Gas Light Bldg., Milwaukee, Wis.*

Irradiated Carnation Milk

"FROM CONTENTED COWS"

wheat flour, yeast, salt, malt extract, and water. The shape of the bread, whether round top, long and flat, twisted, or oval, makes no difference so long as the formula is fairly rich in the ingredients mentioned.

Actual tests conducted in the laboratory have shown, furthermore, that toast scoring highest in such desirable properties as flavor, aroma, color, tenderness, general appearance, and good eating qualities is prepared from white bread containing at least 6 per cent milk solids, 6 per cent sugar, 4 per cent shortening, and 2 per cent salt. The kind of milk used, whether fluid, condensed, or dried, and the type of shortening make no difference in the toasting quality of the bread.

Here, then, is a formula hint for the relatively few housewives who still bake their own bread. More than 80 per cent of the 10 billion loaves of bread consumed annually in this country are, however, produced by some 28,000 commercial bakers, whose general custom it is to use relatively rich formulas for all white breads except the French and Italian varieties. If, then, you want the best toast from your baker's bread, ask for the products in which milk in some form has been added.

The use of milk or milk products in the making of American bread and other baked goods has shown a remarkable growth since 1920. It is estimated, in fact, that the baking industry purchases annually the equivalent of a quarter of a billion quarts of milk. While some whole, fluid milk is employed, the milk solids in bread are derived chiefly from condensed and evaporated milks, both whole and skimmed, and from dry milk solids from which most of the fat and water have been removed.

Today, more than 100 million pounds of dry milk solids containing not over 1½ per cent fat are used in making white bread other than the French and Italian types, and this quantity is now more than three times as great as it was in 1923. The average modern white loaf will have about 6 per cent milk solids, although the amount in individual brands may vary from 3 to 12 per cent. Not only is the toasting quality of bread improved by these extra milk solids, but its nutritive properties are increased by the addition of the valuable milk proteins, lactose, minerals, and small amounts of certain vitamins, such as vitamin B_1 (thiamin) and vitamin B_2 (riboflavin). Several thousand bakers in this country are now adding thiamine (vitamin B_1) to white breads by various effective methods, such as the use of high vitamin yeast, specially milled flours and the use of crystalline vitamin preparations.

Dietary Advantages of Toasting

When bread of any kind, white, whole wheat, or rye is thoroughly toasted, so that it takes on a rich, golden-brown hue, some interesting and advantageous changes occur. The carbohydrate of the bread, in which starch represents from 40 to 44 per cent of the loaf is converted largely into simple carbohydrates known as dextrins, and into soluble starch. The moisture in the bread, which is limited by law to 38 per cent, is also greatly reduced. There is likewise some caramelization of the sugars, a process which adds to the pleasing color and palatability of the toast.

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Dextrins and soluble starch together provide one of the most digestible forms of carbohydrate that can be obtained by the human body as a source of food-energy. Dextrins are also sweeter to the taste than starch, which accounts in part for the pleasing flavor of toast.

Although the digestion of starch and dextrins begins in the mouth and is continued briefly in the stomach, most of the digestion of dextrin occurs in the lower intestinal tract. Together with lactose, or milk sugar, dextrin favors good intestinal hygiene, since these substances encourage the growth of beneficial organisms. When, for example, acidophilus milk is used, liberal amounts of lactose and dextrins must be taken with it to aid in proper implantation of the valuable acidophilus organisms in the digestive system. Carbohydrates such as lactose and the dextrins are finally converted by the body into the simple sugar, dextrose or glucose, which is absorbed and conveyed by the blood to the muscles and other tissues for the energy needs of the human machine.

Thorough toasting of bread seems also to bring about advantageous changes in its proteins, which comprise nearly 10 per cent of the loaf. Persons who are unduly sensitive, or allergic, to wheat may have no difficulty with good toast, although the relatively few severe cases may still have trouble.

Toast made from white bread, rich in milk solids, is a fair source of the important food-mineral, calcium, which is necessary in the daily diet for growth and vitality; for building strong bones and teeth; for aid in proper blood-clotting, and for the avoidance of certain types of nervous disorders. Recent investigations have shown, in fact, that six slices of white bread made with milk solids will supply the normal adult with nearly one third of his minimum daily calcium requirement. Two glasses of pasteurized or certified milk will provide the remainder.

Although moisture is removed from bread by toasting, the caloric value of a slice of toast is the same as that of a slice of bread. The average half inch slice of white, whole wheat, rye, or raisin bread will yield from 60 to 80 units of food energy, the precise amount depending on the shape and dimen-

New Research Shows Brer Rabbit Molasses

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One or more tablespoons several times daily will supply a substantial amount of the iron needed by the body

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1. **Brer Rabbit New Orleans Molasses is second only to beef liver as a rich food source of iron.* 3 tablespoons of Brer Rabbit Molasses will supply about one-third of your child's total daily iron requirements.**
2. **The iron in Brer Rabbit Molasses is from 80% to over 90% available for use by the body, depending upon the grade of molasses. This iron is natural to the molasses —*not added.***

**"It is apparent . . . that of the foods reputed to be excellent sources of iron, only liver compares favorably with molasses . . . It appears . . . that molasses . . . is, moreover, the most inexpensive food source of iron." (American Journal of Digestive Diseases)*

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BRER RABBIT NEW ORLEANS MOLASSES comes in two flavors to meet all taste preferences. If a dark, full-flavored molasses is desired, ask for Green Label. If a light, mild-flavored molasses is wanted, ask for Gold Label.

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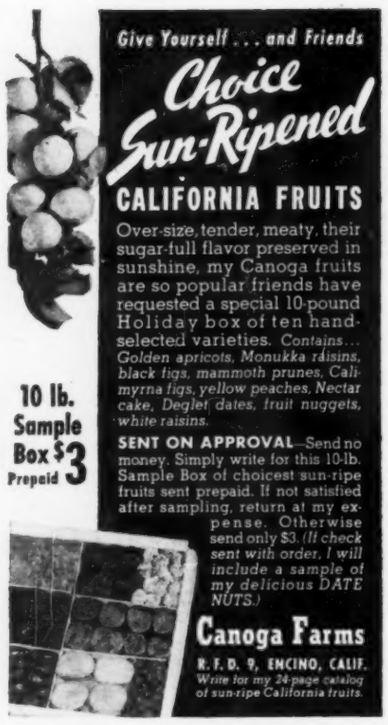
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sions of the slice. Melba toast, consisting of extra-thin slices of bread slowly heated in an oven, will have about 40 calories. When butter, the best of the food fats, is spread upon toast the caloric value will be approximately doubled, and vitamin A is added.

Like bread, toast is not fattening when included in a well-balanced daily diet. No single food is fattening for that matter, since the only fattening food is too much of all foods. It is the total day's diet of many different comestibles that may cause unsightly overweight if the total of all the foods exceeds the usual energy needs of the body. Like bread, toast may appropriately be included in reasonable amounts in sensible reducing diets, since it furnishes a desirable type of carbohydrate that aids in the proper burning of body fat. "Fat burns in the flame of the carbohydrates," is a well-established physiologic maxim.

Proper Methods of Toasting

Bread that has been properly toasted will have a golden brown color on both surfaces. It should be tender, smooth, and crunchy, and should break easily without being too brittle. When hot, the toast should have a pleasant, sweet and appetizing aroma, and should have a slightly sweet taste that is faintly suggestive of nuts. It should not be too thick, tough, soggy, or porous.

Contrary to common belief, the age of the bread makes little difference in the production of good toast. Fresh bread, one-day-old bread, and stale bread will all make excellent toast if they are relatively rich in milk solids, shortening, and sugar. Whole wheat and rye breads make good toast, but not quite as good as the best white bread, although that is, obviously, a matter of personal taste and preference.

The actual toasting may be done over an open fire, on a gas range, in an oven, or in an electric toaster. The secret of good toasting is to adjust the heat and the time to secure a thorough job; one that results in a crisp, golden brown product that is neither too lightly seared nor so charred that it resembles a piece of coke. If, however, soft toast is desired, use fairly thick slices and toast them rather quickly in a high heat. If you want crisp, hard toast, use thin slices and heat them slowly.

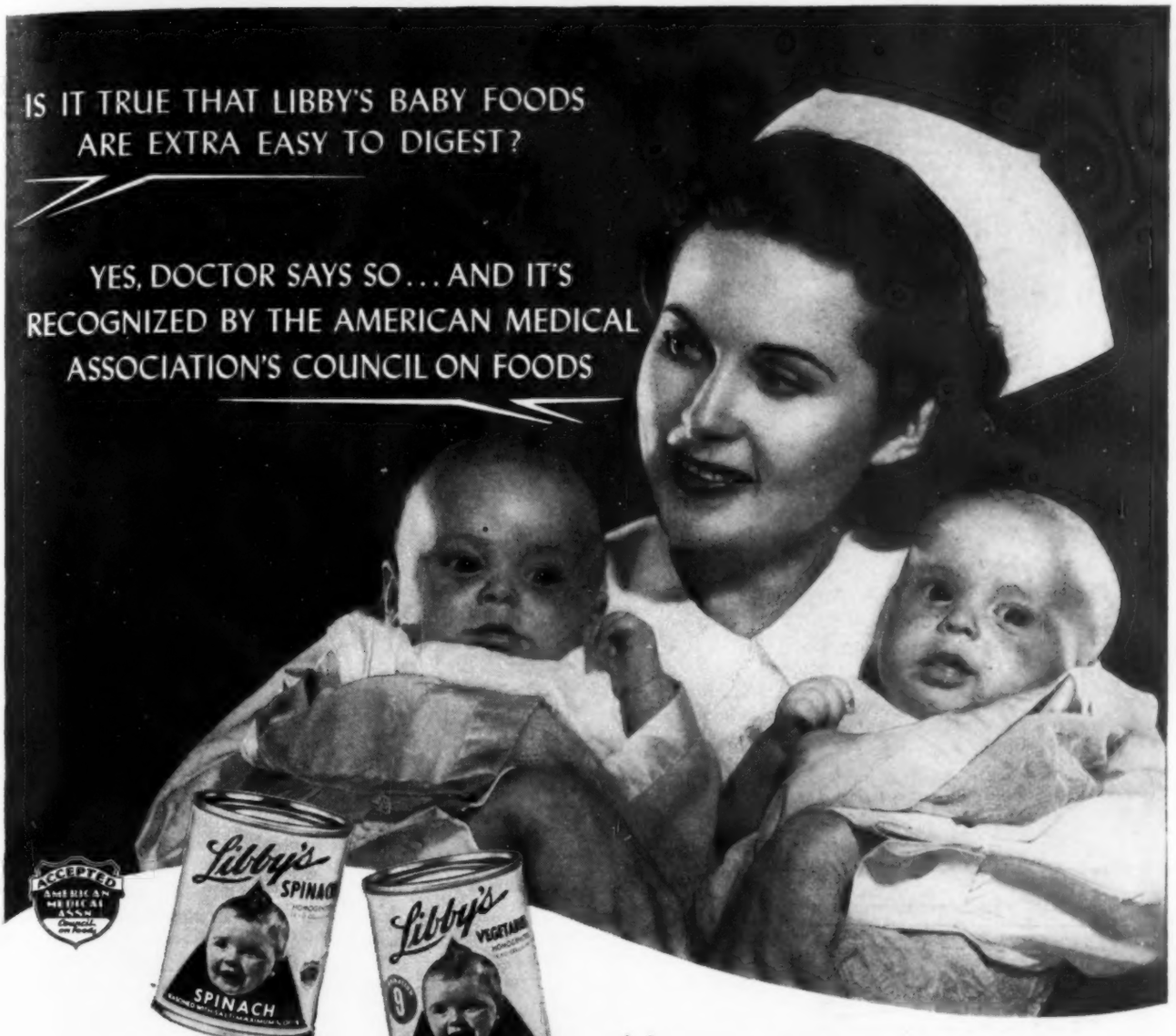
On the basis of a score of 100 for perfect toast, experts usually allot 20 points for color, 20 for aroma, 20 for taste, 15 for character of the crumb or interior, 15 for the character of the toasted surface, and 10 for the character of the bread crust.

Toast may be used to advantage in many different ways in the daily diet. It goes well with any meal, and may be used as a cereal food at breakfast-time. In combination with other foods or in special recipes, toast is both nourishing and savory. Milk toast, for example, is a bland and particularly pleasing concoction of two valuable foods, the nutritive properties of which are ideal supplements to each other. French toast, prepared by dipping bread or toast in a mixture of egg, milk, and a little sugar and salt, and then frying, is also a tasty and highly nourishing dish. Cinnamon toast, molasses toast, and various other combinations are equally enjoyable.

For breakfast or dinner, for luncheon or afternoon tea, for school lunch boxes or cafeteria sandwiches, toast is justly popular among American consumers. When properly prepared, it not only appeals to the most fastidious palate, but it is the best and one of our most economical sources of essential food-energy.

BLOOD TRANSFUSIONS

In spite of newspaper publicity implying that blood transfusions from a patient who has recovered from Streptococcus viridans endocarditis (inflammation of the membrane lining the heart) are curative, there is no adequate evidence that such transfusions have resulted in cure, *The Journal* of the American Medical Association declares in answer to an inquiry. In reply to the inquirer's question as to the criteria determining recovery from the disease, *The Journal* says that many patients experience a period of arrest, but only after two or three years of freedom from fever and absence of other symptoms can a patient be considered to have recovered.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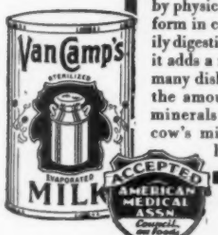

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AVOCADOES

By HARRIET MORGAN FYLER

WE BUY, day after day, fruits from the market that we no longer think of as tropical fruits, because we have them so frequently that we consider them as products native to this country. Yet, the avocado, pineapple and banana originated in tropical countries. Our largest supply of avocadoes now is grown in the states of California and Florida.

Until recently the avocado was known as a luxury food, appearing as a salad de luxe on hotel menus and served in the average home only as an extra special delicacy. Avocadoes now find their way to chain store counters and make their claim for a place on more moderate priced menus. This fruit also is known by the names alligator pear, although it is not a pear but belongs to the melon family; "Calavo," a trade name compounded of California and avocado, and "Flavo," a trade name compounded of Florida and avocado. Only since 1920 has the avocado been produced in United States on a commercial scale. Government plant experts have wandered through Central America, Peru, Ecuador, Chile, Mexico and the West Indies for types of avocado best adapted to Florida and California climates. Today there are about 8,000 acres of avocado orchards in California and about 2,500 acres in Florida. As the crop at home and abroad matures at different seasons, the avocado is available the year round. California ships her crop in winter and spring, Florida in summer and fall. Cuba's avocadoes ripen in July, August and September.

The avocado comes to market in many contours and colors: pear shaped, round or ovoid and ranging from light yellow green through dark green to a mahogany red. The green ones are considered superior. The yellow or light green flesh which surrounds the single large seed is smooth in texture and has a characteristic nutty flavor. Most consumers prefer the avocado when it is of medium size, weighing from a half to a pound, green in color and with a fairly smooth or roughly granulated skin. Oversized fruit is apt to be mushy, and much of the flavor is lost.

Dietitians and epicures alike can be enthusiastic over the avocado. This fruit has about four times as much food value as most fruits, excepting bananas. One fourth to one half of a medium avocado, depending on the fat and water content, yields about 100 calories. The fat content varies widely from 7 to 26 per cent, according to variety, and is said to be 94 per cent digestible. The buttery flesh of the avocado is richer in oil than any fruit except the olive. The fruit contains only a small amount of protein (2 per cent) and sugar (1 per cent). Avocado is especially useful in the diet of the diabetic, because it contains no starch and the total sugar content is so low. The calcium and phosphorus content of avocado is greater than that of many common fruits, and the iron content is relatively high. Most varieties of avocadoes contain vitamins A, B_1, D, E and G (riboflavin). Some varieties even run the gamut of the vitamin alphabet and have a small quantity of C. The Mexicans have a saying that where the avocado grows, men are strong and tall: Nutritionists nod their heads in assent.

There are two schools of thought on the use of the avocado. One maintains it should be served simply—on the chilled half or quarter shell with freshly cut lemon, or in chaste slices with or without sections of orange or grapefruit on a bed of crisp watercress, endive or other salad green with a lemon French dressing. According to the other school of thought, the bland, nutlike flavor of the fruit blends

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ACCEPTED AMERICAN MEDICAL ASSN. Council on Foods

perfectly with cheese, seafood, fowl, pickles, olives, spicy seasonings, onions and garlic. Such ingredients are considered delicious when mixed with avocado for appetizers or salads. But however the avocado is served, it must be thoroughly ripe to be good. The proper way to determine ripeness is to see if the fruit will yield to slight pressure of the palms when it is held in both hands. If it is not ripe it will mellow at room temperature, though not in the ice box. It is usually chilled before it is served, but it is not placed next to the ice or freezing unit. The flesh of an avocado that is just right for a salad will stay bright for an hour or so, but in time it is bound to darken. No more of the skin should be peeled than is to be used for one meal. Cut portions may be covered with waxed paper and placed in the refrigerator to prevent discoloration.

Avocadoes are simple to prepare, but a pointer or two may be helpful. To obtain neat-looking peeled halves of avocado, it is best to cut the avocado in half and remove the seed before peeling, for the soft flesh mashes badly if one peels it first and then attempts to separate the flesh from the seed. A slight twisting motion separates the halves much more readily than does any attempt to pry them apart. To obtain good-looking long strips or slices, peel the avocado first, then slice lengthwise on the seed, and remove the sections.

Avocado and Grapefruit Salad

Remove grapefruit in sections, and slice peeled avocado lengthwise in about ¼ inch slices. Arrange alternating slices of grapefruit and avocado, and serve, with tart French dressing made with grapefruit juice.

Avocado Stuffed with Crabmeat

Pit and peel avocadoes, preparing as many halves as there are persons to be served. Pick over and flake either fresh or canned crabmeat, and mix with thousand island dressing made by blending mayonnaise and chili sauce in equal parts. Place each avocado half on a lettuce leaf on a salad plate, and fill centers heaping up with crabmeat. This is delicious served as a main dish for a luncheon, chilled, on a plate with creamed new potatoes and accompanied by hot rolls.

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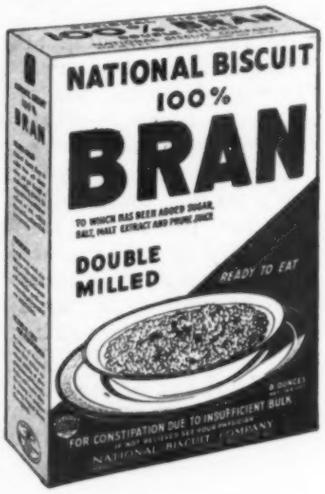

NATIONAL BISCUIT COMPANY

VISITING

By JACK GAINS

Excellent health and a cheerful personality are contagious, but so are ill health and a general, gloomy outlook on life.

VISITING the sick is a great pleasure, experienced by a peculiar breed of persons whose lives otherwise are drab and commonplace. There is but one greater thrill for these professional visitors of the sick: the supreme pleasure of attending the funeral of one of the patients they have previously visited while he was on his deathbed.

If the patient is critically ill, especially if he has some obscure or unusual malady, these visitors bore in with great persistence, almost taking the case in hand. Even if the sign, "NO VISITORS," is hung outside of the room they will barge in, even where angels might hesitate to intrude. For there is that strange something in the make-up of these persons, causing them to believe that they can do the patient great good by their presence and inane chatter. This is indeed egotism, gone to seed and raised to the *n*th power.

Some of these visitors, after horning into the sick-room, will proceed to tell the gruesome details of how "Aunt Sarah had precisely the same trouble, but she died."

Others, just as bad and just as idiotic will bustle in and say: "Ha, ha, ha, I thought they said you were sick? You look well. You're not sick. Why don't you get out of bed?"

The patient, knowing this to be mere windy talk from an empty head, is apt to feel worse after the visitor has removed herself from the sick-room. (I say "herself" because I have found that the major portion of these visitors of the sick are females—or women.) Such pests should not be allowed to enter the sick-room until the patient is sufficiently recovered.

Then there are the curiosity seekers who visit the sick to get some news to peddle to their less agile friends. Has the patient hiccoughs, convulsions, or delirium tremens? These are grave symptoms! So the poor suffering patient must be seen in order that first hand information may be gathered on which to make a report to the world.

Or it may be that the patient is a young woman complaining of

the SICK

some stomach disturbance. If so, look out for the gossips, for they will all be there in the sick-room. And if the patient is a young, unmarried woman, troubled with nausea, what then? No array of big eunuchs armed with elm clubs could keep the visitors away. And will they tell it all, and add some too, when they leave that sick-room? They probably will.

Since these visitors are hard-headed and set in their ways, they are exceedingly hostile to new ideas, requiring nothing short of a sharp rap on the head with a white elm club to bring any sort of change in their ideas or actions.

Should the sick have any visitors? That depends on the circumstances. If the case is severe enough to require a doctor and a nurse or two in attendance, instructions regarding visitors are usually given and enforced. But if the sick person lives in a small town, or out in the country, it is very difficult to control the matter of visitors.

Of course, the neighbors are good-hearted; they flock in, especially on Sundays, or any other time when they are not busy. They talk of anything and everything, for hours at a time. For fear of offending, the doctor and the family at last give up all idea of trying to control visitors, and let whosoever will, come. But, no matter where they are, every mother and her newborn baby should be shielded from visitors for at least a week or ten days. So the sane plan for you to follow is to stay away until you are invited to come.

However, instead of calling in person, it is permissible in any and all cases for you to use the telephone to follow their welfare, offering sympathy if need be. And with good taste one may send flowers to the sick. A five pound box of chocolates might be in good taste. Sometimes a note of cheer helps.

Assuming you have passed all barriers and sentries, and that you are now in the presence of the sick, just what are you going to do? And what are you going to say? How shall you approach the bedside? And how long are you going to stay? Are you going to gurgle, simper, guffaw? Or are you going to mope and sit silent and dour? It all depends upon your judgment, or lack of it. Once you are in, it is up to you to make good, or else quietly get out. The smartest thing you can do is to be natural, if possible, and to say a few commonplace words, on nearly any subject except health, disease, or death, avoiding any reference to the appearance of the patient, or suggestions as to the treatment or care of the patient. Do not whisper. Do not tiptoe, nor go to the other extreme and knock over a chair, a lamp, or a slop-jar.

It is sometimes very encouraging to speak to the patient of some pleasant plan for the future, to be accomplished after he is well. I once knew a visitor who came from the country to the city to visit his brother who was very ill with typhoid fever. He did not stay long. He said little. But just as he was leaving he dropped a remark into the patient's ear:

"Dick, I want you to come up to the farm and ride my saddle stallion when you are recovering."

That idea struck into the patient's feverish brain and stuck there, reverberating over and over, giving him something to which to look forward. It helped him to live and to recover. For he did go and ride the stallion during his convalescence.

Many have the idea that to go and sit quietly in the sick-room can do the patient no harm. But this idea is fallacious. For many very ill patients feel an added strain when anyone merely enters the room, although the visitor may not utter a word. A sick person needs much letting alone. And unfortunately some persons are irritating even to those who are in good health. How then are the afflicted to fare? And how do you know that you are not one of these irritating persons? The sick are often too weak and weary to complain. And the family would not offend a neighbor, even though he be a mutton-head and an all-around nuisance. So the patient suffers strain, unrest and irritation. And when at long last you are gone, the family swears, and everyone hopes you will stay away until the patient is up and strong enough to withstand any and all disturbing, distressing, distracting influences.

You need not ask the sick person how he feels. If he feels very ill, you will make him feel worse by your idiotic question. If he feels better, he will soon tell you without your asking. Whereupon you may smile sweetly, agree with him, and get out. In the words of a well-known evangelist: "Close while the interest is good." For it is far better that the patient should weep because you left so soon, than to have a convulsion because you stayed so long.

Never visit the sick through idle curiosity, nor merely because you are tired of staying at home and feel that you need a little outing. For you cannot fool the sick nor his family. And when they see you coming down the street, they will hope you pass by on the other side.

Finally, do not visit the sick unless you are feeling quite well yourself. For good humor, good health and a cheerful personality are contagious; and so also are melancholy, ill health, and hysteria. The best time to visit the sick is after they have well recovered, or at least are convalescent. In the meantime, send flowers and candy. The patient will enjoy the flowers, and the nurse will take care of the candy. If you feel that you must see the patient, before you go, be sure you are wanted. And if you go, make your call short. When you have called and done your best, leave promptly; not within half an hour. Short visits make strong friends.

It all depends upon your intelligence, or lack of it.

QUESTIONS AND *Answers*

Blood Types

To the Editor:—Why is it that a child may have a blood type which is not similar to either of its parents? Is it possible for a child to have a blood type which has not been present in either family? What makes blood types differ? Is it the fibrogen content?

H. M., New York.

Answer.—The expression as used by a physician refers to blood groups. If two persons belong to the same blood group, then the blood of one may be transfused into the blood vessels of the other person without danger. All races of people studied have blood groups though the percentage of persons belonging to the four groups varies in different races.

A child may be in a blood group other than that of either parent, and may possibly have blood of a type absent from both family trees for many generations. Types of blood differ because of the existence of substances called agglutinogens and agglutinins; the former are in the red blood cells, the latter in the fluid portion of the blood. These substances are present as determined by heredity alone, irrespective of environment or of chemical composition of the blood. There are two agglutinogens, designated A and B; the blood group in which an individual falls depends on the presence of neither, either, or both of these. Thus there are four groups: O, A, B, and AB. These agglutinogens are transmitted from parent to child according to the laws of heredity and cannot be present in a child unless possessed by one or both parents. Hence, when both parents are group O, all children must be in that group. When one parent is group A and the other group A or group O, the children will be group A or group O; and the same statement applies in the case of group B. The offspring of a group A and a group B parent may be in any of the four groups. When one parent is group AB and the other is group O, the children will be either group A or group B, but never in the same group as either parent. The mating of a group A or group B with group AB will result in offspring of any group except group O, which can never include the progeny of an AB parent.

The agglutinins in the blood are not directly related to the fibrinogen (a constituent that is necessary for clotting) content of the blood.

Brain and Balance

To the Editor:—Many claim that persons who have suffered the loss of both limbs cannot stand alone if they close their eyes. Why do they have a sensation of falling?

E. J., Oregon.

Answer.—If sensation is normal, and there is no disturbance in the organ of equilibrium and its connections in the brain, balance may be maintained in an upright position with eyes open or shut. The loss of one's legs does not alter this ability. In fact, it is the experience of many with amputated extremities (in which the stump is painful) to feel pain in the amputated part. This is a psychological experience not well understood. The sensation of falling may be similar, but is a psychological experience rather than a neurological one.

Asthma and Wind Instruments

To the Editor:—Can you tell me whether or not the playing of a wind instrument would have any effect on health? I have a son who had asthma and when he started to play a horn his asthma began to improve. I assume this is a coincidence, but the thought came to me that it might have improved his respiratory apparatus in some way.

R. R., New Jersey.

Answer.—In certain asthmatic patients, the onset of attacks is influenced by nervous factors which may, in part, be brought under conscious control of the patient. This control may be improved by training, and for this reason, phy-

Acme

Only satisfactory blood specimens are typed, extracted and stored in "banks" for future use in emergency transfusions.

sicians sometimes prescribe breathing exercises for asthma sufferers. It is not impossible that the well disciplined breath control required for playing the horn may have acted favorably in the case described. The correspondent did not state the age of the boy under discussion. Certain children "outgrow" their asthma as they leave childhood, and perhaps this fact, rather than the horn-playing, accounts for the suggested coincidence.

Diet Over 60

To the Editor:—What is the proper diet for persons of 60 years of age and over? Most sources merely give figures for calory and protein requirements in the two classifications—"for a child" and "for an adult." Recently I read an article which stated, "At 65 years an 1800 calory diet is sufficient, and as age advances this should be gradually reduced to 1200 or even 1100." But isn't it true that each individual needs to figure his own maintenance diet? For instance, I am 62, my weight is normal for my age and height. At 2100 calories I just maintain my weight. At 2000 I lose slightly. Should I lower my calory intake at any given age provided I am maintaining my proper weight? This article also states, "An active man in middle age should never reduce his daily protein below 40 grams. He may take 50 or even 60 grams without harm. To go above 70 is dangerous to health." Is this statement true and, if so, should the man of 60 or 65 years reduce his protein intake still more?

My husband and I are interested in getting accurate information on these subjects. He is 65 and I am 62 and I know it is vitally important that people of this age should not overeat, but we are puzzled as to what is correct. G. W., California.

Answer.—Until recent years, little attention has been given to the diet of the adult who is 60 years of age and over. With the greater life expectancy of today, the question of a proper diet after 60 years of age is increasingly important.

Animal research has shown that the rat instinctively will eat what he needs if he is able to get it. Humans, however, are influenced in

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their selection of food by culture, fads, cost and availability of food.

The diet requirements for every age group include the consideration of three factors, namely: caloric requirement, protein requirement and the need for vitamins and minerals. We are no longer striving for maintenance levels or a mere adequacy, but for optimal levels for health and longevity.

The caloric requirement of an adult is based on height, on ideal body weight, on activity and, to a lesser extent, on age. Insurance statistics show that people of average weight live longer, feel better, and look better, as a rule, than those who are overweight or much underweight, but that after 30 years of age it may be safer to be as much as 10 per cent below the average weight.

For a man of 60 years, who is 5 feet, 10 inches in height, the average weight is 173 pounds; a safer weight may be 173 less 10 per cent, or 156 pounds. At rest in bed such a man, if he is to retain this lower weight, requires 1620 calories. These are "basal calories." An increment of 50 per cent of these "basal calories" will usually provide the calories needed for work in a sedentary occupation. Thus the total would be 1620 plus 810, or 2430 calories. For a less active occupation, the increment of calories would be less. For room rest an increment of 20 per cent of the "basal calories" will suffice. For a woman of the same age, who is 5 feet, 5 inches in height, the average weight is 148 pounds; a safer weight might be 133 pounds. At rest in bed she would require 1340 calories. An increment of 50 per cent for light work will make 2010 calories.

The experiences of Steffansson, the explorer, and his co-workers who have eaten an exclusive meat diet over a period of years, seems to indicate that a moderately high protein diet containing from 100 to 140 Gm. protein daily is without harm to men of middle age. From animal experimentation, we can assume that an unusually low protein diet results eventually in physical impairment. One authority believes that man gains in longevity, vigor, and happiness by eating a liberal amount of protein. To quote: "By liberal is meant an amount well in excess of his theoretic needs, such an amount as the more prosperous races, in their long experience, have instinctively chosen, 100 grams or more daily."

For old age as well as for youth, the basis of an adequate diet is the same. First, sufficient calories to keep the weight normal; second, adequate protein; third, adequate amounts of essential vitamins and minerals. Two glasses of milk or buttermilk, one egg or equivalent, and one serving of meat or fish daily is a good foundation on which to build. Other foods which should be eaten daily are two servings of fruit, one of which must be citrus fruit or tomato juice, two servings of vegetable, preferably one raw and one cooked, two servings of whole grain cereal or of whole grain bread, one serving of potato and 1 ounce of butter. There is no scientific evidence that any of these "protective" foods are injurious in any way for the aged. They probably are as important in old age as in the middle years.

Deafness in Children

To the Editor:—Can you tell me why I have five deaf children out of eleven?

E. C., New York.

Answer.—Without being in possession of all the facts concerning the family and children it is not possible to submit a complete answer to the above question. Deafness is associated with many factors and the remarks to follow are based on the assumption that the children referred to here have never been known to hear and on examination of the ears there is no obvious cause to account for the deafness.

For the sake of clarity it is well to state that individuals suffering from extreme deafness in very early childhood, whatever the cause may be, fail to acquire or retain the articulate power of speech and the resultant condition is referred to as deaf mutism. Among the causes of deaf mutism are a number of recognized factors. For the purpose of brevity we divide these into two general groups. In the first group we find those conditions present at birth and usually referred to as congenital. Here one must distinguish between (1) the congenital type in which a transmissible absence or malformation of a part of the hearing mechanism is present, and (2) the hereditary type or transmission of a degenerative

element as is found in certain diseases. In the second group may be placed those who as a result of a severe infection in infancy or early life lose their sense of hearing and are designated as suffering from acquired deafness.

Obviously it is not practical to discuss details under the present circumstances. These are best obtained from any of the standard texts dealing with the subject.

Some interesting findings in transmission of deafness are cited by Kerrison who reviewed the work of some investigators of the problem of deaf mutism. Among these are the findings of Mygge who collected from the records of different countries the histories of 367 marriages between individuals one or both of whom were deaf mutes, and found that of the children born to them twenty-two were congenital deaf mutes. In investigating the family histories of deaf mute children in Glasgow institutions for such patients, Love (quoted by Kerrison) came upon three families in which both father and mother were congenitally deaf. Among the children born to these three unions were five congenital deaf mutes. Love also cites the Forty-Seventh Report of the Cambrian Institute, in which is given a record of 34 families in which 130 children were born, of which 54 were deaf.

Other interesting facts collected by Love bearing on close relationship of parents and the spread of deaf mutism are the following: Among the Roman Catholics of Germany (prior to 1913) whose church prohibits intermarriage between near blood relations, the proportion of deaf mutes to the rest of the Catholic population was one in 3,000. With Protestants, by whom intermarriage between cousins is not condemned and among whom it is by no means uncommon, the proportion was one to 2,000; "while among the Jews, who encourage intermarriage between blood relations, the deaf mutes were one to 400" (Hutchinson).*

Among the most frequent causes of acquired deafness are meningitis, scarlet fever, measles, diphtheria, typhoid fever and mumps. Studies in recent years have shown that sensitivity to quinine at childbirth may affect the organ of hearing of the infant.

* [It should be remembered that in marriages of closely related persons such as cousins it is not the

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relationship itself which causes defects in the offspring, it is the bringing together of like characteristics from closely related hereditary stocks. This works in favor of the offspring when heredity on both sides is good, and vice versa. See also "Should Cousins Marry?" HYGEIA, November 1937.—ED.]

Lip Biting

To the Editor:—What causes a person to bite the flesh on his lips and especially the interior of the mouth? Is there a way of breaking this habit if it is done periodically and excessively? Are there any harmful results from a continuance of this habit?

J. D., Ohio.

Answer.—This habit is one of the large group of oral "tics" such as twisting or pursing the lips and stereotyped movements of the mouth, tongue, etc. These tics are all firmly fixed habitual acts arising in childhood as a result of emotional stresses which have later become unconscious. They are usually harmless, though socially undesirable, but constantly repeated biting of the lips and mucous membranes of the mouth might very well become harmful. The proper treatment can be given by a qualified psychiatrist who will uncover the emotional stresses back of the habit, bring them and their origins into consciousness, and attempt to resolve them. This is a highly individual matter, and must be solved for each person individually.

Eyestrain

To the Editor:—Does the use of white boards instead of slate increase eye-strain due to glare rather than diminish it?

M. R., Iowa.

Answer.—Experience has proved that there is very much more glare from black letters written on a white background, than from white characters on a black board. There is more ocular fatigue, and after prolonged gaze the black characters are less distinguishable. Therefore, white boards should not be used.

Myopia

To the Editor:—Can an advanced progressive myopia (nearsightedness) create a back pressure on the optic nerve and injure this structure?

C. B., New York.

Answer.—Advanced, progressive myopia is always attended with thinning of the sclera (eyeball coating), which is greatest at the edge of the optic nerve. The tissue of the sclera is here continuous with the tissue layer of the nerve head, which may become involved in the process of thinning and atrophy; and this may extend back into the optic nerve. This does not mean the creation of a "back pressure," but a continuance of the usual pressure in the eye, with diminished resistance from the tissue which supports the fibers of the optic nerve. Such injury to the optic nerve will arise from stretching and by the excessive convergence of the eyeball to look at things held close to the eyes. Only by preventing the excessive turning in of the eyes can this injury be checked.

Food Molds

To the Editor:—What causes mold on food and is it poisonous? Are molds on cheese, sausage or jelly dangerous to health?

R. H., Illinois.

Answer.—Molds are groups of tiny plants so small that the individual structures can be seen only by means of a microscope. There are many varieties of molds but all molds develop from spores which are similar to the seeds of higher plants. Spores are hard to kill; they can withstand unfavorable conditions for days and when given favorable surroundings, grow and develop into molds. Favorable conditions for the development of molds are food, a temperature neither too hot or too cold, moisture and sometimes oxygen.

Mold growth in most foods is not injurious and may even increase the palatability of food. For example, some cheeses, notably Roquefort, Limburger, Brie and Camembert are eaten only after extensive mold growth has taken place. The characteristic flavor and aroma of these cheeses are due to the substances formed by the particular species of mold. Mold on top of jams, jellies, and preserves is unsightly rather than harmful, and the same holds for molds on bread and other foods.

A practical way to prevent growth of mold on the outside of

home made sausage is to dip the sausage in melted fat. When cold, the fat forms an impervious layer around the sausage.

Glass Eyes

To the Editor:—I have a glass eye. During cold or chilling weather the secretions on the eye tend to dry and harden causing discomfort and irritation. Is there a remedy for this condition?

The following factors must be considered:

1. Solution must not irritate the eye socket.
2. It must not have a deleterious effect on the glass eye.
3. There must be no offensive odor.

L. S., New York.

Answer.—A solution of boric acid, glycerine and distilled water in the proper amounts as prescribed by the physician can be advised. This could be dropped freely into the eye or rubbed freely into the skin when that is irritated. The glass eye can be dipped into such a solution without harm. It has no offensive odor. The solution could be diluted or concentrated according to the individual needs of each person.

If you have a question relating to health, write to "Questions and Answers," HYGEIA, enclosing a three-cent stamp. Questions are submitted to recognized authorities in the several branches of medicine. Diagnoses in individual cases are not attempted nor is treatment prescribed. Anonymous letters are ignored.

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In man, the competency to distinguish a variety of colors is probably more valuable esthetically than practically, but in animals it may be the difference of life and death

SCENE: a swanky haberdashery. Characters: Salesclerk, and Grace and Johnny (a young married couple). Action: The clerk presents a dozen vari-colored neckties which Grace and Johnny finger for a few moments. Then Grace says, "We'll take these three." Johnny nods and the clerk wraps the selection. Carrying their package, Grace and Johnny leave the store, arm in arm. Every one is happy.

Astonishing, you say? How can he be happy, when his wife has just chosen his neckties, usurped his privilege, so to speak? Why doesn't he insist on picking them out himself? Where is his manhood?

On the contrary, Johnny is an extremely intelligent young man. He has just publicly acknowledged a well-known scientific fact. Though both his father and Grace's father were color blind, Johnny knows that he has inherited this deficiency while his wife has not. Johnny knows that the common kind of human color blindness, called dichromasy, occurs in females only by accident. Johnny knows that while only one woman in every twenty-five hundred is dichromatic, one man in every twenty-five lacks normal color vision.

Exactly how, you may ask, does dichromasy differ from normal color vision? Well, if you are not dichromatic, with a little practice you can learn to distinguish about one hundred and sixty different hues in the spectrum. But if you are a dichromate, only two hues will ever truly exist for you—yellow and blue. You will confuse red and green because, for you, they are both shades of yellow. Certain shades of red and green, such as ordinary red bricks and green grass, may be a perfect match in your eyes!

Time Magazine recently stated that it had been discovered that color blind airmen could spot camouflaged artillery which was successfully concealed from pilots with normal vision. Scientists explain this by the fact that two colors may look alike to a normal person and yet look very different to the dichromate. In the last war, German pilots took advantage of this strange technicality to produce a sort of artificial color-blindness which baffled the French army for a long time, since even though the French were using the green paint (just the color of foliage) for camouflage, the Boche reconnaissance pilots soon were able to find the French guns. How did they do it? Eventually, the French learned about the German's use of this artificial color blindness. The French shot down a German plane and found the pilot wearing blue goggles, which had, obviously, made the gun emplacements visible to him. Although the green paint and the leaves looked alike, as the French had intended, they didn't reflect the same assortment of light wavelengths. The colored goggles absorbed different amounts of the wavelengths emanated from the green foliage and the paint. Seen through the blue goggles, there was a vast amount of difference in the appearance of the two greens which were exactly alike to normal eyesight.

(Several medical authorities on the eye and a number of flight surgeons disagree with the conclusions

By **DOROTHY GLAZER**

as stated in Time Magazine, while others agree only partially. Further observations and experiments will be necessary before it can be stated definitely whether color blindness is an aid in the detection of any or all kinds of camouflage from the air.—Ed.)

In human beings, the ability to distinguish a variety of colors is probably more an esthetic value than practical, but in animals it may actually weigh the balance between life and death. Fishes, reptiles, birds and higher monkeys have the same color sense as man. But very often, for these forms of wildlife, to see colors instead of seeing everything in shades of gray, enables them to tell more exactly what things are, and just what they ought to do about them. An animal's enemies may be seen against their natural backgrounds most of the time—so that being color blind will not matter—but on those occasions when the enemy appears against a differently colored background, an animal's knowledge of red as contrasted with green may actually make it possible for him to save his life.

Probably every one knows by now that the hummingbird is greatly attracted to the color red, but science has performed some interesting tests to determine that of all animal life, only fishes, birds, reptiles and some monkeys have our color vision. Everything would be simple, of course, if an animal could say what he sees . . . but as things are, scientists must train animals to get them to prove whether or not they can see colors. This is made all the more difficult because some animals, like snakes, won't

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try to learn anything; and others, like opossums and frogs, are so stupid that they just can't learn anything.

During the training process the animal has to learn to go to a yellow light, where he finds access to food, avoiding the blue light. The animal is allowed to get hungry, and is then put into a Y-shaped box. As he comes to the branches of the Y, he will go to the right or the left, depending upon which side is illuminated by the positive training color. So that the animal won't simply learn always to go to the same side, the two colors are changed at irregular intervals, during the experiment. When the animal makes a correct choice, he receives some food. This procedure is repeated many times. The animal struggles to make the proper choice between the two colors, because he is hungry. When that occurs, after a number of similar tests, the animal is given a rest until the next day. Finally, the animal will go always to the yellow light, where he is fed, in preference to the blue, where he is not. But science is not yet satisfied that he has proved his ability to tell colors apart. The test must be more critical, because it is possible that to the animal's eye both yellow and blue may look colorless with just a difference in brightness to lead him to the rewarding one. So now the blue light is varied in brightness. Sometimes, when the blue has a particular brightness, the animal will become confused and go as often to one light as to the other. This will mean, in spite of the preliminary experiments, that the animal is color blind. Unless he can discriminate the blue from the yellow without regard to their brightness, he cannot have been telling them apart on the basis of color.

But to get back to Grace and Johnny: The young husband was proving his intelligence since, being that one color blind male in every twenty-five, he allowed his wife to choose his ties. But Grace, though equipped with normal color vision, may not actually have made a perfect selection.

This statement takes into account the previous mention of wavelengths in connection with color. The color sensibility of her eyes was important to Grace's ability to see white or black, red, or any other color. But she should also have taken into account two other factors such as the light which the color receives, the way it reflects, transmits, or absorbs this light, and the canceling effects produced by interference of light waves. In other words, to be sure she was getting the exact green to go with Johnny's new green suit, his wife should have taken the necktie to the street. She should have known that artificial light of the store may have shown her a green which was but a camouflage of the green she thought she was buying.

Light travels in waves, their length depending on the rapidity of vibration. We receive the sensation of red through the longest waves which affect our eye, three-millionths of an inch in length. We have the sensation of violet from the shortest waves we can see, slightly more than half as long as the red. The still shorter waves, too short to be seen, contain the invisible ultra-violet rays which physicians use. Infra-red are those too long to be seen. These measurements refer, of course, to standard red and violet. If the red has more yellow in it than a standard red, the wave length is shorter.

White light is that light of the sun containing waves of an infinite number of different lengths, visible white light being a combination of the seven colors of the rainbow: violet, indigo, blue, green, yellow, orange, and red. Objects which you call blue in the sunlight will seem less blue by the light of a kerosene lamp, because the lamp has fewer blue waves than sunlight. Did you ever notice the ghastly green color that flesh appears to take on when a person sits near a mercury lamp, such as printers sometimes use in the composing room? This is because the mercury lamp has practically no long rays. Nothing can look red in this light.

Color, then, is not a quality of objects at all, but rather an interpretation given to the senses by the peculiar functioning of the eye.

For men who have no normal visioned person to select their neckties, there is this consolation: One in every twenty-five men, seeing that hysterical combination of hues around your neck, won't be any more conscious of the clash than you are.

BRUCELLOSIS (Continued from page 986)

of the patient and laboratory cultures of Brucella. The white blood cells of a person suffering from brucellosis have less power to phagocytize or engulf Brucella than have the cells of those who have recovered. The white blood cells of individuals without a history of brucellosis fail to show this phenomenon. As in most diseases, the diagnosis rests upon an extensive history, carefully taken, and a thorough physical examination, correlated with the various laboratory tests.

Treatment has lagged far behind diagnosis. It has been difficult to judge the efficacy of any treatment because of the protracted character of brucellosis and the small number of cases in which any single method of treatment has been tried. Vaccines prepared from killed Brucella have been futile in most cases. Chemical agents, like metaphen and sulfanilamide, are apparently without effect. A serum made from the blood of an experimentally infected animal has failed to satisfy its expectations. Huddleson places hope on Brucellin, prepared by passing liquid cultures of Brucella through a filter and recovering the bacteria-free filtrate.

All methods of treatment are difficult to evaluate because spontaneous remissions are a prominent feature of brucellosis. It is not easy, therefore, to determine whether the patient has improved spontaneously or because of the administration of the remedy. At present, the only treatment for brucellosis is that employed in tuberculosis and in rheumatic fever, namely, rest, fresh air, good nursing, adequate nutrition, and postponement of return to work until recovery is well established.

Human brucellosis is apparently not transmitted from man to man, although reasonable precautions should be observed to avoid contagion. Since the disease is contracted from animals and animal products, the problem of the control and prevention of brucellosis belongs to veterinary medicine and government intervention. All domestic animals (cows, goats, pigs, sheep, horses, chickens) may be infected, and the problem is one of controlling the disease in such animals. Just as cattle are tested for tuberculosis, they are tested for brucellar infection. In many states, in cooperation with the United States Department of Agriculture, the infected cattle are destroyed, the meat disposed of under the federal meat inspection regulations, and the owners reimbursed. Tests are repeated until no animal in a herd reacts positively. The barns are disinfected, and only tested cattle may be purchased as replacements. When an area, corresponding to a county, has virtually no reactors, it is protected against the importation of cattle from infected areas. When an entire state has reached this level, it is called a "modified accredited state." At present only California is a non-accredited state.

The anti-brucellosis campaign has met with opposition, usually from the small dairyman-farmer who cannot stand the economic loss of any animal of his already small herd. Since the reimbursement is also small, he sees in the campaign an attempt on the part of the larger dairymen and dairy companies to drive him out of business. Until the disease can be more adequately controlled, a more ample payment for destroyed cattle is the only method to overcome his objections.

Brucellosis in the United States is not a minor matter. In four years (July, 1934 to August, 1938) almost 27 million cattle were tested. Every seventeenth animal was found infected and slaughtered! Ironically enough, this has been done in those areas where brucellosis is least common, with the result that the incidence of human brucellosis remains unchanged in the areas where it is most prevalent.

It is difficult to estimate how many persons in the United States are suffering from brucellosis, but there are more patients in the midwest than in the east and in country areas, where livestock is infected and non-pasteurized dairy products are consumed, than in cities. During a recent six-months survey

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in Charlotte, N. C., a city of about 107,000, Dr. Evans and her co-workers uncovered twenty-two cases of chronic brucellosis. The infection was apparently contracted by eating non-pasteurized, infected dairy products. Since the incidence of human brucellosis in the United States is linked to the hog industry, it is encouraging to read Huddleson's findings that indicate the disease is self-limiting in hogs, burning itself out within three months. Swine brucellosis may be completely eliminated by destroying the animals that show a positive agglutination test. But until further measures are found and adopted, care in the handling of cattle, swine, and goats, the adequate cooking of meat products and the pasteurization of all dairy products are the best safeguards against brucellosis.

DUCTLESS GLANDS (Continued from page 963)

origin are rare, but excessive secretion may cause precocious sexual maturity and decreased skeletal growth. Experimental work with rats has shown that the thymus gland accelerates growth and development, but this has not been established for human physiology. The stage of development and quantity of the sex, thyroid and anterior pituitary gland secretions determine growth and sexual development.

The anterior pituitary, near the center of the head and at the base of the brain, seemingly has more functions than the other ductless glands. While the pituitary gland is not immediately essential to life, as has been demonstrated with laboratory animals, removal in man or loss of function ultimately results in death. The hormones secreted by the anterior pituitary gland stimulate body growth and the function of other glands, including the sex, thyroid, adrenal and the breasts.

The effect of the growth hormone secreted by the pituitary gland is more noticeable in skeletal development than in the soft tissues of the body. During childhood and adolescence, as well as in later life, excessive pituitary secretions cause all body organs to develop enormously. The pituitary gland also produces a sex stimulating hormone which, by its action on the sex glands, permits normal sexual development.

The pituitary gland in conjunction with the sex glands controls both the production of sex hormones and the formation of either spermatozoa or ova. During very early embryonic development the sex hormones influence normal masculine and feminine growth of the progeny, and in the periods of adolescence and puberty, they are responsible for transforming the child into a normally mature male or female.

The thyroid gland produces thyroxin, a hormone which stimulates chemical cellular activity of the body cells. If the thyroid functions normally, throughout the growth period, no growth variations may be discernible. But when the secretions are diminished, development is arrested and the body remains dwarfed. An increased secretion of the thyroid hormone will not result, conversely, in an enlarged body type, but there is a pronounced activity of all body cells. While the thyroid is functioning normally, pituitary and sex glands become the dominating factors in bodily development.

INDISCRIMINATE USE OF BROMIDES

"In this day, when the emotional strains are already impinging to an alarming extent on the consciousness of the public in general, it is high time that society protected itself against the use of those preparations which may contribute to an alarming increase in various forms of mental upsets or even insanity," *The Journal* of the American Medical Association declares in a discussion of the risks involved in the use of bromides as sedatives.

"There is no need for hysteria over the unwarranted use of preparations containing potentially dangerous ingredients, but there is need for restricted self-medication. With the conscientious and combined efforts of physicians, pharmacists and pharmaceutical manufacturers, such an aim can easily be achieved."

PROTAMINE ZINC INSULIN

Although protamine zinc insulin is generally agreed to be superior to the regular, shorter acting insulin in treating adults with diabetes, only 4 of a group of 51 children were satisfactorily treated with the former substance alone, George Booth, Pittsburgh, Pa., reports in the *Pennsylvania Medical Journal.*

Protamine zinc insulin generally must be taken only once a day in contrast to three times a day for the regular insulin. However, the author found that in treating diabetic children it is usually best to use both types. Some patients, he says, do better on large doses of the protamine type, supplemented with small doses of the regular insulin, while in others a better control is maintained by giving larger doses of the regular and smaller doses of the protamine zinc insulin.

"There are probably several factors which contribute to the difficulties of using the longer acting insulin in children," he says. "The diabetes is ordinarily considerably more severe in children, and it is admitted that it is the patient with severe diabetes who has trouble in using protamine. The activity of children is a more variable and unpredictable factor and adds considerably to the difficulty of control. The children, under proper control, are constantly growing, both in height and in weight, and their requirement is therefore constantly changing. In other words, they are diabetically and, in general, more unstable than adults."

ILL EFFECTS OF ASPIRIN AND OIL OF WINTERGREEN

More attention should be given to the poisonous effects of aspirin and oil of wintergreen, *The Journal* of the American Medical Association declares in an editorial which discusses the ill effects of these two commonly used products and points to the comparatively high death rate from aspirin, recently reported from England.

"Since introduction of aspirin forty-one years ago by Dresser, many reports have appeared on the adverse effects which may follow its unwise use," the editorial says. "These have included depression of the heart, habit formation, miscarriage in pregnancy, and idiosyncrasy causing such alarming symptoms as urticaria (hives), pruritus (itching), erythema (redness of skin) and generalized angioneurotic edema (swelling of the skin due to a blood vessel disorder). Cutaneous (skin) eruptions of various forms are not unknown, and even ulceration and gangrene have been attributed to its use. Because of the irritant action of the products containing the salicyl group on renal epithelium (the outer covering of the kidney) acetylsalicylic acid (aspirin) is contraindicated in nephritis (kidney inflammation). Other persons especially susceptible to undesirable effects of the drug are drunkards and persons with diabetes. In the latter groups, adverse effects show a special relation to the nervous system."

BERIBERI IS NOT RESTRICTED TO THE ORIENT

Beriberi, a nutritional disease due to a deficiency of vitamin B_1, is not restricted to the Orient but occurs quite frequently in the Western Hemisphere as well, Soma Weiss, Boston, points out in *The Journal* of the American Medical Association.

Beriberi may affect particularly the nervous system, heart, blood vessels or a combination of the three. The name of the disease, which means "I cannot," is significant: the patient, with his weakened heart and limbs, finds it difficult to accomplish anything.

The disease has long been recognized in the Orient, where its common occurrence is associated with the excessive consumption of polished rice to the exclusion of other nutritional elements, vitamin B_1 in particular. In the Occident, however, it has generally gone unrecognized, being confused with other disorders. Weiss reports cases in which he shows that the disease occurs in the Occident and is commonly associated with alcoholism. Its manifestations are similar to those of Oriental beriberi. Vitamin B_1 often relieves symptoms.

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Listen, Dear Parents!

ARE YOU in the groove as a parent? Does your teen-age son think you're a killer-diller, or something that crawls under the rug at night? Do you rate aces with your son or are you just another deuce. Is he proud to talk of you to his friends at school, on the athletic field or wherever he may go, or does the subject come up as a topic of conversation only at such times when he cannot avoid it?

The answer depends on you and your attitude toward him. Listed below are ten characteristics which teen-age boys want their parents to possess. How do you rate with your sons? Give yourself ten points for every one you honestly feel you possess and add up the score. Then if you want to make a real hit with your family put a few of the practices into everyday dealing, whether at home, fishing, or on the baseball diamond with your son.

A score of 100 means you're perfect as a Mother or Dad. Even 80 to 95 means you fill the bill. But don't be discouraged if you hit a new low of 60 for that's just average. Below 60 be careful. You're missing something and so is your son, for somewhere you lack that indefinable something which makes parents heroes to their sons. But let's listen as a teen age boy dips into the characteristics which they believe make you an ideal parent.

First on our list is consistency. That's a funny word but it really means whether or not you yourself act the way you expect us to. For instance, when you ask us to let you see the comic section before we do that's fine. But Mother, when Dad wants to see the magazine you're trying to read and you say in a bored tone, "can't you wait until after I'm through reading?" that shows us that you don't know the meaning of the word. When you give us a lecture on the value of keeping our appointments punctually and not half an hour later we hear you on the telephone making excuses to the lady next door for being half an hour late for the bridge game, what are we to think? And when Dad gives us a bawling out for being out late to a sand-lot baseball game and keeping dinner waiting, we know it's our fault. But when we are roused out of bed at 1 a. m. because Dad overstayed his leave at the monthly meeting of his club, where does that leave us?

And last but not least, when we momentarily forget our table manners and eat with a knife we are reminded emphatically that gentlemen do not act that way. And not seconds later when we notice Dad attacking a steak as though it were his one and only square meal, we may be pardoned for remembering and doubting that old nursery rhyme, "What's sauce for the goose means nothing to the gander." So much for consistency. In other words, Mother and Dad, correct our mistakes but don't forget to give yourselves a few reminders when you do the same things we do.

Tact comes next. In case you have never heard the word it means handling us with kid gloves. It's the thing you lack when you see us all dolled up in our new clothes and you remark that we look like something out of a fire sale. You may be right or only joking but the joke fails to register with us. It's the same lack of tact that makes you joke at our first date with a girl friend; our coming home with a solitary fish instead of the mess of trout we promised to deliver. But at least we catch our fish, not buy them at the neighborhood grocery. It's tact which is so missing when you tell our best pal on his first overnight visit that he'll have to put up with our snoring. If we do snore, it's a sure thing that he'll find out before the evening is finished and that's soon enough. You wouldn't like it, Mother, if we told you what we thought of your queer hats. Then don't tell us what's wrong with our new bow-

Intuition, roughly translated, is your ability to realize that the razor strop is not the only answer when we come home with a black eye or a bloody nose.

By EUGENE A. CONKLIN

tie or the mess jacket we are so proud of. Summing it up, tact means saying the right thing at the right time. And cardinal sin number one is lack of sufficient tact to understand that never should we be given a talking to in front of our friends, no matter when or where, for any offense ranging from a broken window to taking the family car out for a trial run and staving in the garage door.

A sense of humor is, sadly enough, lacking in most parents, perhaps because they forget their ways of acting in childhood, or because they are too busy making a living or doing housework. Briefly a sense of humor means the ability to laugh when you have planned an elaborate dinner and find we've eaten the ice cream a half hour before dessert. But, of course, there's a difference between a practical joker in the household and an occasional harmless prank. And if you have a sense of humor and don't show it you simply can't rate with us. If we see you blowing up to sixty at some prank, our opinion goes faithfully down to freezing. A sense of humor to us means your ability to see the funny side of life and you'd better cultivate it if you want to really understand us.

On this question of intuition most of us agree that Mothers have a distinct edge over Fathers. Whether it's because they see more of us, or because they understand us better, it's true that we give them the high score on that characteristic. Intuition, roughly translated, is your ability to understand that when we enter the living room with a peach of a bloody nose and a dark blue eye to match, you don't have to start searching for the razor strap. It means knowing that there are times when we wish to be alone and other times when we are aching for your companionship. It is the ability to sense when we are happy and when we are blue and when we are just normal kids. In other words intuition is when you know more about us than we know about ourselves. It means understanding that when we slam the door as we go out it isn't at all necessary to call Dad and have him search for us. We'll get over that by ourselves. And most of all, it stands for letting us come to you for advice when we need it without asking us first. You either have this quality or you don't and it means much to us.

And then there's the question of loyalty. This indicates that you have confidence in us, that you realize that we can, do, and will make mistakes but that deep down in our heart we're all that you want us to be. Loyalty assures us that no matter what mess we've gotten ourselves into, we can be sure that you're right behind us; that you will never judge us on some one else's story, without first giving us a chance to defend ourselves. It stands for sticking together against the world. In order to have loyalty you must be completely sold on us and have faith in the training and bringing up you have given us.

Following along closely is self-confidence. That's a sticker to define, too. But if you and Dad don't believe in yourselves, how can you expect us to have confidence in our ability to meet any situation which may arise? We want you both to be successful. But when you aren't, we're not ashamed, if you don't give up. If you, Dad, are out of a job, or Mother, if the housework gets you down, we watch you closely to see if you get right up and face your problems, or if you make excuses. And if the latter course is your choice it leaves us with the feeling that maybe it's easier to make excuses than to fight and face reality. It's the way in which you meet your problems that determines our success in later life. We want to boast to our friends, that no matter what happens, our Mother and Dad are never licked. Some people call that courage but courage according to our standards is largely belief in one's self. You can't have courage unless you are confident you're right. So if you want to go over big with us, just show us that you believe in yourselves. That's the best encouragement you can give us. Once you let us feel that you can't handle your own problems, we're licked, too.

I suppose that now is a good time to tell you what we mean by effective discipline. You notice that I

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said effective discipline. That means only one thing; that you know we deserve to be punished before you decide not to spare the rod. It shows that you exercise good judgment in the punishment you map out for us; that it is neither too light nor too severe. When we do wrong we expect to be punished but we want you to be certain we deserve it first of all. And if we are punished it's a matter between you and us alone, not the entire neighborhood. Punishment before our friends or the family is the worst black mark we can place against you because we lose our self respect and more important we lose our respect for you. And make the punishment fit the crime. Don't regard our being late to supper a crime of the first magnitude. If we talk out of turn don't spend a half hour on a discussion of, "Little boys should be seen not heard." Just quietly say, "Mother's talking," and that will do the trick. And remember the worst punishment of all is silence. A few hours or even minutes of the silence treatment and we're ready to call it quits. And if you must punish us, explain why; don't let us guess.

And of course there's generosity. This word is probably the most abused in our vocabulary. To be a tight-wad is the worst impression you can make on us. We don't expect to be given more than you can afford to give us. And we don't want luxuries which will keep you paying for the next four or five years. But when you, Mother, believe that clothes should be worn until they literally come apart, or Dad's sole consideration is cutting the food bill and electric light expense 14 cents below last week's record, then you are at the bottom in our scale of things. We expect to work hard, perhaps selling newspapers, or in the corner drug store, but we're only human and if you give us an unexpected surprise, now and then, it means a great deal to us. Generosity doesn't always mean money, though. Being generous with magazines, papers, the time you spend talking with us, the amount of attention you give to our troubles and worries, taking us out for an automobile ride or walk when you're head is splitting and you feel more like resting; that's our impression of generosity.

And now the most important trait of all, companionship. You are our parents. It's only natural that we're deeply interested in you and you in us. But how often do you show that you care beyond the daily scoldings and naggings, admonished for our misdeeds. We want you, Dad, to take us on fishing trips, spend a day hunting in the forest, throw a few homers in baseball or even kick the pigskin around in the back yard, anything to show us that you want to be with us. If you work during the day there's always Saturday afternoon and Sunday. And take a little time out, evenings, to talk about our hobbies. You had one when you were young. And if you wonder why we are so anxious to leave the house nights, it's ten to one that it's because you can't play chess, cards, or talk with us about anything, even our favorite radio program. Every Mother and Dad could be a great deal closer to their sons if they talked with them, instead of, "Run along Son, Dad's busy right now" or, "Go away, I've got to get ready for the dance tonight." You might try teaching us how to dance. We're interested. So take a little time out, Mother and Dad, and spend more time with us, your teen-age sons.

Now that we've said about everything, here are just a few hints we would like to leave with you. If you must quarrel, do it when we're not around. If you don't like our radio programs and consider them too rich for our blood, look back 10 years and see if you weren't partial to cowboys and Indians. We have a mild suspicion that our radio programs of today are pale indeed compared to the dime novels we found recently in the attic. If you consider swing a misconception of spent energy and time, remember the "Tiger Rag" of your childhood. If our bed isn't tidy remember how your's looks just before you make it up, a few seconds before bedtime.

And, oh yes, don't think we are terrible young hoodlums because our air rifle happened to hit the pet poodle next door, or because your best friend's kitten received an unexpected and unappreciated tar coating. When we no longer have time for such antics that will mean that we, like you, have grown up and become adults. And that means, probably, that we will make the same mistakes you have. But we hope not, don't you?

TEETH (Continued from page 976)

ers have to be willing to spend some time supervising the process until the child's hand becomes accustomed to the correct strokes. Simply to ask: "Did you brush your teeth, Johnny?" is not enough. How Johnny brushes his teeth is quite as important as how often he brushes them. Wetting the brush and making a few random motions with it inside the mouth may salve a conscience but does not get teeth clean enough to prevent decay.

Instruments designed for the care of the teeth are as old as civilization. There is scientific evidence to show that the cavemen cleaned their teeth. Of course they had no nice-tasting dentifrices or proper brushes. They used twigs which are probably the great great grandfather of our modern toothpick.

The Romans made toothpaste out of pumice, egg-shells or ashes from the heel of an ox, the whole ground up and mixed with myrrh. To sweeten the breath they rubbed the teeth with honey or goat's milk. Mouth washes are at least two thousand years old.

But let's get back to Johnny, who is still waiting to learn how to brush his teeth. Even before he is old enough to need a real brush, you should wipe the film off the first baby teeth with a piece of clean gauze, dipped in a little milk of magnesia. This can be done in connection with the small baby's daily toilet routine at bath-time, and again at night before he is put to bed.

When Johnny is a year old he is ready for his first toothbrush. It should be fairly soft, to avoid injuring the tender gums, and small enough to reach the surface of every tooth.

As Johnny gets older, he must be taught to brush his teeth after every meal, just as matter-of-factly as he learns to wash his hands before meals. See that he holds the brush firmly with a palm and thumb grip on the handle. This will prevent the brush from slipping and injuring the gums.

Less drilling than it takes to teach him his multiplication tables will insure his acquiring proper tooth-brushing habits for life. Here are the fundamental procedures:

1. Brush away from the gums, downward when cleaning the upper teeth, and upward on the lower teeth.

2. Brush inside as well as outside, using a swivel-like motion on the inner surfaces.

3. Brush chewing surfaces horizontally.

4. Brush firmly but gently as though sweeping a floor—not scrubbing it! Violent horizontal brushing wears off the enamel and is injurious to the gums.

5. Rinse the brush thoroughly and hang it up to dry in a clean place where there is a circulation of air.

6. Don't miss a tooth! To paraphrase a biblical injunction: "The last shall be the first to decay if you neglect it!"

7. Heavy stains can be cleaned only by the dentist. Under no circumstances attempt to scrape the teeth with any sharp instrument.

After 10, the child is ready for a few additions to the technic of tooth-brushing. The advanced method uses the same fundamental principle of brushing away from the gum, but adds a vibratory motion which is essential for gum massage. Proper stimulation of the circulation prevents the swollen and bleeding gums to which the child becomes more liable as he grows older.

Teach the older child the following rules which he is to use for the rest of his life.

1. Place the brush flat against the teeth with the bristles covering the margin of the gum for about one eighth of an inch only.

2. Turn the brush away from the sides of the teeth at a forty-five degree angle, keeping the ends of the bristles in contact with the gum margin.

3. Begin the vibratory motion. Sway the brush gently to the left without moving the points of the bristles from their original position.

4. Continue the vibratory motion, swaying the brush gently to the right, again not moving the points of the bristles.

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5. Gradually draw the brush toward the biting surfaces of the teeth, continuing the side-to-side motion or "shimmy."

There is a right and a wrong psychology regarding the child's visits to the dentist. Remember that he will reflect your own attitude and if you are casual and matter-of-fact about the proceeding, he will react accordingly. Usually it is not the child who requires an anesthetic in the chair, but the anxious parent standing beside him! If you are that sort of mother, by all means make things easier for your youngster by remaining in the dentist's outside waiting room!

A little wise praise goes a long way. But never pat the child on the back and tell him he is a hero, for you are thus unconsciously painting a picture of the dentist as a sort of dragon, some one whom he has to be brave enough to face. The child who starts early enough and goes frequently enough will have no fear of the chair. Painless visits to the dentist for a check-up and cleaning are the best possible foundation for a happy, wholesome attitude that will last for life.

As more parents realize the vital importance of bringing up children who are unhandicapped by missing teeth and crooked jaws, there will be more dentists who feel that they can afford to specialize in this field. It takes great patience, an understanding of children, and the willingness to take time to win their confidence, if a dentist is to make this work his special province.

Parents sometimes fail to appreciate this fact, and are unwilling to pay even a reasonable amount for what they refer to as "just filling a tiny hole in a baby tooth!" Proper knowledge of oral hygiene will convince all intelligent mothers and fathers that each baby tooth is literally worth its weight in gold.

Unfortunately, a tooth-ache is not as dramatic as some other forms of physical handicap, such as infantile paralysis, for instance. If it were, public funds would be available in larger amounts for the research still needed in the field of dental hygiene. One hundred per cent of the world's children have a tendency to tooth decay. The ones who are destined not to become the dental cripples of the next generation, are the fortunate children whose mothers are wise enough to realize that teeth are the outposts of health and the cornerstone of beauty.

VITAMIN C YIELD PER ACRE

"Agricultural economists may well begin now to give attention to the amount of vitamin C produced in calculating the yield of certain crops to the acre," *The Journal* of the American Medical Association says in pointing out that strawberries and cabbages have been found to have a high vitamin C content.

It cites studies which indicate that "to supply a fairly liberal daily allowance of vitamin C, equivalent to 1,000 units or 50 milligrams of ascorbic acid, it would be necessary to consume only from 77 to 138 grams of strawberries (about 3 to 5 ounces) or from 28 to 104 grams of fresh cabbage (about 1 to 4 ounces). The vitamin C requirements of the adult may be supplied by a small portion of coleslaw or by about 30 strawberries. The time may come when foods will have to be selected for their contribution of dietary essentials. It will be necessary to know not only the relative amounts of ascorbic acid in different foods, but also the contribution which different varieties of each food may make and the effects of processing, storage, cooking and perhaps even environmental conditions during the growing season."

ACNE, WARTS and MOLES

Next to acne, warts and moles were the most common skin disorders found among 4,700 high school girls, Ida J. Mintzer, Jamaica, N. Y., reports in the *Archives of Dermatology and Syphilology.*

There were 384 cases of acne, 48 each of warts and moles, 45 of dermatophytosis (skin diseases due to plant growths, such as ringworm) and 16 of tongue abnormalities.

IS FOOTBALL DANGEROUS?

(Continued from page 972)

the ball starts an end run, advancing the ball 30 yards to the 45 yard line. On the play one of the offensive players is clipped from behind. The penalty for the play is 15 yards, which is measured off from where the ball was dead on the 45 yard line. This means that the ball, when next put in play, would be on the opponent's 40 yard line. This severe penalty will make players hesitate a long time before purposefully committing a "clipping foul."

A third new rule regulates the illegal shift. During the 1939 season, when an illegal shift occurred, the referee could not blow his whistle until the ball was dead. This season the new rule provides that when an illegal shift takes place, the referee is instructed to blow his whistle immediately. Consequently, there will be no possibility of refusing the penalty for this foul.

By adopting the new rule governing the illegal shift, long runs will not be carried out unnecessarily. It was during these long runs, which didn't count and which wasted energy, that many injuries happened. Here again, is a rule that will contribute its bit to safe playing.

But, however well the rules governing football are planned, there is always the possibility of examples of poor sportsmanship. Continued poor sportsmanship becomes a problem of both the boy and the coach. The rules are quite explicit about unfair playing. Here, for example, is a rule that is very plainly stated:

"There shall be no unnecessary roughness or play which is conducive to unnecessary roughness. This shall apply to tripping; jumping over another player with both feet or both knees foremost or striding over a player who is not prostrate; clipping; striking an opponent with the foot or shin; striking or slapping an opponent on the head, neck or face with the palm of the hand; charging or grasping a runner who is clearly out of bounds; running into, throwing the body against, falling or piling upon a prostrate player, a player who is obviously out of the play or any player after the ball is dead; and any other act which the official deems unnecessary roughness."

Certainly, in the past all too many accidents have resulted in unfair tactics. The problem is first one for the player. Any player may lose his temper and commit a foul which he will later regret. But the player who continually fouls when the game doesn't go to suit him has missed one of the outstanding contributions of football: good sportsmanship. When that happens it is the duty of the coach to refuse the player further participation in football until he has learned the real meaning of sportsmanship.

Poor sportsmanship among coaches is regrettable, and, in the final analysis, is a problem for the school principal. For the most part, however, there is evidence that the great majority of high school coaches in the United States are excellent sportsmen.

Parents can count on these coaches to do everything possible to administer football games that will provide a maximum of safety for their sons. But also necessary is a continued interest on the part of parents in all the problems associated with the conduct of football for immature boys.

CORRECTION

Lois Mattox Miller's statement that ". . . the United States Department of Agriculture has made a study of pollens in all parts of the country," appearing in the August issue in "We Call It Allergy," is incorrect.

The Department of Agriculture has not conducted comprehensive pollen studies nor does it provide specimen pollens or pollen extracts for skin tests or for treatment of pollen diseases. The Department's investigations are confined to the biochemistry of allergens and their distribution in agricultural products and by-products.

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IT WASN'T MY FAULT!

(*Continued from page 990*)

in the event his automobile suddenly gets out of control, that is his own concern. But it is another matter if that automobile injures or kills an innocent bystander.

There is a large group of persons who are subject to sudden loss of consciousness. Some faint easily at the mere suggestion of impending danger; whereas others are afflicted with definite diseases, such as epilepsy and *petit mal*, a minor form of epilepsy. There is another condition which is rapidly attracting attention. For the want of a better name, it is called motor lipothymia. Lipothymia is derived from two Greek words which mean swooning. It is characterized by a momentary loss of consciousness, preceded by fleeting dizziness or slight nausea. It particularly affects those persons who are hypersensitive to motion. The feeling is similar to that experienced in a rapidly descending elevator. The loss of consciousness may be for only a second or two, but we have already seen what can happen when the reaction time is slowed only one fifth of a second. An authority on this subject states, "All available tests should be made of persons applying for an automobile license to ascertain their hypersensitiveness to motion. If found to be of the hypersensitive type, license should not be granted."

How any one who has defective vision, which is not compensated for by properly fitted eyeglasses, can be given the right to drive an automobile is beyond comprehension. There are countless thousands who are so nearsighted that they cannot recognize a friend on the opposite side of a room, and yet they dare to drive automobiles. And we wonder why some one is struck every ten seconds! Besides measuring the acuity of vision, it is just as important to determine how well a person can judge distances. An object 10 feet away may appear to some individuals to be 20 feet away. The potential danger of such a driver is apparent. This condition is found most frequently in persons having the sight of one eye impaired. Stereoscopic vision is disturbed and the ability to gage distances correctly is upset.

One does not ordinarily associate such a common disease as diabetes with automobile accidents. A person with diabetes who adheres strictly to the prescribed dietetic regimen and uses insulin properly does not suffer any impaired efficiency from the presence of the disease. When, however, such a person is not under strict medical supervision, it is possible that his vision may suddenly become momentarily impaired or that he may become unconscious while driving. Many accidents have been traced to this cause. There are more than a million persons suffering from diabetes in the United States. No one can deny that this figure is large enough for immediate consideration as a factor in automobile accidents.

One might be led to believe from these statements that practically no one is fit to drive an automobile. This would be an absurdity. However, it is true that there are thousands of persons driving automobiles who are physically and mentally unfit to assume this responsibility. What of it, if we remove a hundred thousand misfits from behind steering wheels, but by so doing the person who is saved from death under an automobile may happen to be you!

Most persons are concerned about a situation only when it strikes home. In this particular instance we must be sincerely concerned to prevent it from striking our homes. A magic carpet which could transport us instantly to the scene of each accident as it occurred would startle us out of our lethargy. In only ten minutes we would witness sixty accidents and one violent death. And as the panic-stricken drivers would cry, "It wasn't my fault!" we, the lawmakers of the nation, should have to answer in shame: "Perhaps not; but it is our fault for giving you a license to drive an automobile without testing your physical and mental ability to do so."

Ewing Galloway

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BOOKS ON HEALTH

Beauty Culture—Theory and Practice

By Harriet W. Morgan and Rosella M. Geisler. Cloth. Price, $2. Pp. 104. Anatomical charts. Pittsburgh: Imperial Ruling and Binding Company, 1939.

Although this book is published primarily for the beauty shops and operators in Pennsylvania, the information and suggestions contained therein will be found valuable for all beauty operators.

The method of presentation of the subject matter, concise and not too technical (though in some instances it may be considered too brief), is to be commended. The simple anatomical charts should assist the operator in more readily understanding the anatomy of those parts of the body which she treats.

The methods and products suggested for beauty culture are, of course, the personal opinions of the authors. Some of them may be controversial, but they are well presented.

The most common diseases of the skin and its appendages are included and also a vocabulary of the more common medical terms with which the beauty operator should be familiar. The regulations governing the conduct of a beauty shop in Pennsylvania and the requirements for the licensing of shop and operator, are included. Many of these regulations are excellent and should be followed voluntarily by those shops and operators of other states which are not subject to laws of this type. JOSEPH J. ELLER.

Tuberculosis and Genius

By Lewis J. Moorman, M.D. Cloth. Price, $2.50. Pp. 272. Chicago: The University of Chicago Press, 1940.

In this volume Dr. Moorman presents a splendid introduction in which he discusses a number of causes of genius manifested by many tuberculous patients. He presents the subject of tuberculosis from antiquity to the present. The cause of genius in so many tuberculous persons is ascribed to many factors such as the toxins produced by the disease which may have a stimulating effect on mental activities; the removal from active life, where earning a livelihood would have prevented genius from becoming manifest and, thus, affording time for the development of that which is nearest the individual's heart; and the realization by some that the remaining months or years of life are few and an attempt to crowd into that time much that had been planned for a longer life. The opinions of numerous persons, and even tuberculous patients themselves, are presented in this fine introduction.

The book contains biographical sketches of Robert Louis Stevenson, Friedrich Schiller, Marie Bashkirtseff, Katherine Mansfield, Voltaire, Moliere, Francis Thompson, Percy Bysshe Shelley, John Keats, and Saint Francis of Assisi. In these sketches many important facts concerning the entire lives of these persons are presented. How genius unfolded in each life is most fascinating. From his wide experience in diagnosing and treating tuberculous patients in his office and his private sanatoriums, as well as that in tuberculosis clinics for the indigent, his long years of teaching diseases of the chest to medical students as Dean of a medical school, and his active participation in local, national and international tuberculosis organization work, Dr. Moorman has greatly enriched his book

Courtesy of "Collier's," the National Weekly, and the artist.

"Gentlemen, this is Mr. Devoe, who plays those amazing roles of disreputable, shiftless doctors on the screen."

by including choice bits of information about all phases of the disease. This makes the book of especial value to tuberculous patients, as well as professional and non-professional workers in this field. More than fifty references to the literature are included.

This is a most fascinating book and can be recommended wholeheartedly not only because it is intensely interesting but also because it contains a large store of information presented by one of the best informed and one of the most trustworthy workers in this field.

J. A. MYERS, M.D.

Diabetes: Practical Suggestions for Doctor and Patient

By Edward L. Bortz, A.B., M.D., F.A.C.P. Second edition. Fabrikoid. Price, $2.50. Pp. 296, with 16 illustrations. Philadelphia: F. A. Davis Company, 1940.

The volume here discussed is a manual the material of which is presented by various specialists, with Dr. Bortz acting as editor and contributor. Such a method requires that the editor be able to join the contributions of his coauthors and to popularize their style. Otherwise the result will be a volume confusing to the patient because of its repetitiousness. On the whole, the editor-author has solved most of the difficulties involved. But there are several weaknesses which perhaps might be corrected in the next edition of the book.

The author says, ". . . childhood diabetes is different from that found in adults and older people." This is questionable, since all diabetes is based on insulin deficiency, and since treatment is essentially the same for all kinds.

On the subject of the time to give insulin the author says: "Standard insulin is given as a rule just preceding meal time. An occasional patient may desire to take it immediately after the meal. As a matter of fact, it makes little difference." However, the time of injection does make a difference; and it is well to note that today many physicians administer insulin after meals.

Again, the author states: "The insulin of choice today, however, for patients who have never taken any kind before, is protamine zinc insulin. When further insulin is required, resort to the crystalline form is the best accepted modern treatment." The modern accepted method is to give plain insulin first; later, if necessary, it is supplemented with protamine zinc insulin. Finally, crystalline zinc insulin is not generally used because the action of plain insulin is more rapid and its duration as prolonged as crystalline.

The author says (and properly), "The usual threshold for diabetics is between 170 and 190 milligrams. Also, the threshold varies even in the same individual at different times. For this reason analysis of the urine alone is not enough either for a diagnosis of the disease or to estimate the progress in a known case." In view of this statement, it seems inconsistent that the author give so much space and importance to detailed methods of urinalysis for sugar.

The chapters on diets by Sister Maude Behrman, on surgery by J. Montgomery Deaver, M.D., on the care of the feet by Arthur Rappaport, chiropodist, will be of great interest to the reader.

This reviewer believes that in the next edition the author might integrate more closely the contributions of his callaborators, by eliminating certain material, by popularizing the information and by dovetailing the assembled chapters more smoothly.

S. A. J.

NOTICE

Books reviewed in this section should be ordered from booksellers or direct from the publishers. They may not be secured through HYGEIA or the American Medical Association, unless published by this organization. The following list contains the complete addresses where the publishers mentioned in these reviews may be reached:

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Imperial Ruling and Binding Company, 28 S. 12th St., Pittsburgh, Pa.

The University of Chicago Press, 5750 Ellis Ave., Chicago.

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Dental Nostrums and the Public Health, by Samuel M. Gordon and Eleanore Dufour. Three articles on the promotion of dental nostrums and dentifrices. 32 pages. 10 cents.

What the Mouth Can Tell, by Louis Cohn. 4 pages. 5 cents.

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HYGEIA welcomes criticisms and suggestions from its readers. Send your comments, addressed to The School Health Program, care of HYGEIA, The Health Magazine, 535 N. Dearborn Street, Chicago.

5. PERIODIC HEALTH EXAMINATIONS

Originally planned as a means of detecting signs of communicable disease, school health examinations were later used to discover untreated skin diseases or other conditions which might result in unnecessarily prolonged absence from school. Then came emphasis on the discovery of physical defects. At present emphasis is being placed on health examinations as educative experiences. Parents may be invited to the examination of elementary pupils. The physician may explain his findings to the pupil or parent and give detailed information to the nurse for use in the follow-up program.

The Summer Round-Up Program, sponsored by the Parent-Teacher Association, has centered a nation-wide interest on this problem and has achieved marked progress in making parents conscious of the need for children to be free of remediable defects on entrance to school. As an ideal, we should look forward to the time when children —preschool children, school children and children out of school— will have periodic examinations.

In some communities, pupils, whenever possible, are referred to their private physician for health examinations and given a form on which the private physician records both his findings and his recommendations for the school. The physician's findings are entered on the health record card and the card returned to the school and filed. School examinations are necessarily limited in scope because of the large number to be examined with limited personnel, lack of laboratory facilities and the school physician's lack of intimate knowledge of the pupil and his past history. As usually planned, the school examination is limited to a consideration of factors related to a pupil's ability to carry on satisfactorily the modern school program. For this latter reason, school examinations give particular attention to vision and hearing and to fitness for participation in the physical education part of the school curriculum. The school examination is not an adequate substitute for continued health supervision by the private practitioner, and the referral of pupils to their private physician for examination is good practice.

As a policy regarding health examinations, it is suggested that schools assume responsibility for developing a program of periodic health examinations, and that this program encourage examination of pupils by their private physician. In following such a policy, it will be necessary for schools to provide examinations for large numbers of pupils whose parents cannot or will not arrange examinations otherwise. Such examinations as are provided by schools should be planned particularly for assisting in understanding the pupil, estimating the pupil's ability to progress with his school work and determining what adaptations in the school program may be desirable.

The day-by-day observation of pupils by teachers and the referral for further investigation of pupils who do not seem well is thought by some to be as valuable a health-promoting activity as the periodic physical examination. Such observations, always to be used as a supplementary measure, frequently detect pupils in need of medical care whose need would not be discovered by medical examination.

How frequently should school sponsored examinations be conducted? Provision should be made for an examination, by either a private physician or a school physician, whenever a pupil fails to grow as expected, shows signs or symptoms of disorder or disease, or when there appears to be a health basis for his failure to make expected school progress. The examination of pupils referred by teachers because of school problems

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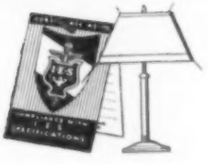

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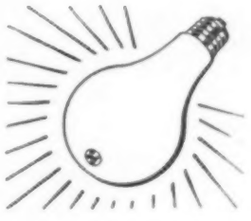

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possibly caused by health conditions or because of observed abnormal conditions should always receive precedence over any routine program of examinations. Many school health workers urge monthly weighing as part of the health education program and as a means of detecting cessation of growth over periods of three or more successive months. Weighing and measuring of pupils is an aid in understanding pupil growth and an educational device to interest them in health, although it is not a reliable index of nutrition. Annual vision testing is recommended. It is believed hearing tests should be made annually in the elementary schools but that biennial tests are sufficient in secondary schools. Children should have dental examinations at least twice each year, and it is recommended that schools urge pupils to have these examinations by their private dentist.

Four examinations—two in the elementary school and two during the secondary school—should detect most abnormal conditions affecting growth, health and school progress as well as afford teachers information necessary for understanding pupils and adjusting school programs to their needs.

Pupils who show serious defect or abnormality and those who have recently had a serious illness or accident may require more frequent examinations, perhaps annual examinations.

The question may be raised, "Should those participating in strenuous athletics be examined annually, or are four examinations during the school period sufficient for this group?" With the present development of physical education programs, it is found that practically all junior and senior high school pupils take part in strenuous activity, and it is quite probable the pupils most in need of health supervision are not those who are members of an interscholastic squad working under the close supervision of a physical education teacher (coach) but rather those who are less proficient but still active in sports.

Those who are taking part in strenuous athletics, particularly activities which are not closely supervised, should be encouraged to have annual examinations by their private physicians. In all cases, there must be an awareness on the part of physical educators and coaches of the need for referring pupils to a physician when abnormal signs are present, a knowledge of the machinery to be used in making such reference and a general understanding of school health policies.

6. SPECIAL ATTENTION TO PUPILS NEEDING MEDICAL OR DENTAL CARE

The special attention schools give to pupils in need of medical and dental care constitutes one method which society has adopted to make sure the health of children is not neglected. From this social point of view, the follow-up program assumes great importance and deserves special consideration.

The follow-up program is a cooperative enterprise requiring participation by school personnel, private physicians and dentists, social and welfare agencies and parents. The initial step is made at the time of examination when in a friendly sympathetic manner the physician outlines the treatment needed and where it can be obtained. This initial step is extremely important, because adequate follow-up cannot take place if the physician is not specific in informing nurses and teachers of what is needed. The nurse plays an important role in these procedures, acting as liaison between the home and school and informing parents and teachers of community treatment resources. However, there is need for all teachers to assist in the follow-up program. This is especially true in the dental field where the number of pupils needing guidance is so large, significant progress can be made only through the help of many individuals.

In helping pupils needing medical or dental care there are several principles which school personnel should follow. First, school personnel should not attempt to diagnose a condition nor suggest to parents or pupils a possible diagnosis. Second, school personnel should never attempt to select a physician or dentist for individual pupils or families; it is important that each family make its own selection of professional advisers. If the family is new in the community, it may obtain the names of qualified professional people from local medical and dental societies. Third, school personnel should advise consultation with the private physician and dentist and suggest free clinics or part-pay clinics only for those unable to afford private care. When parents or pupils are referred to clinics, they should be informed that clinics are for those unable to pay regular fees and that whether or not a clinic will give service depends on the results of a social investigation.

It will be noted that special attention to pupils needing medical or dental care does not make the school responsible for diagnosis and treatment. Diagnosis and treatment (including diphtheria immunization, refraction of eyes and the fitting of glasses, tonsil operations, dental prophylaxis, etc.) are responsibilities of practicing physicians and dentists. The securing of dental and medical care is a responsibility of the parent.

No pupil should be handicapped because he fails to receive needed health care.

One problem relates to children whose parents are financially unable to provide needed medical and dental care. The supplying of this care, as well as the supplying of

other needs, is a community rather than a school problem. The solution of this problem can best be accomplished through the cooperative efforts of many groups, such as welfare agencies, medical and dental societies, public health agencies, schools, civic organizations and others.

If existing community facilities for the medical and dental care of poor children are found inadequate, what should the schools do? Probably the best procedure is to obtain specific data indicating the inadequacy of treatment facilities and present these data to those in charge of medical and dental relief programs with a plea that adequate facilities be provided.

Such a plan is superior to the establishment of treatment clinics in schools. If school clinics are developed, they serve only the needs of children in the public schools, while clinics for adults and non-public school pupils may be operated under other administration. To avoid duplication, or at best, dual control, it seems better that existing facilities for the medical and dental care of adults and children be increased if necessary so to care for school children. As stated by the White House Conference Report on the School Health Program, "Any policy that does for the individual what he can do for himself leaves him more dependent and less willing to care for himself when the protecting hand is withdrawn." Sound school health education teaches children and parents where and how to get treatment so that when they leave school and when they are in need of care during vacations, they will have learned how health needs may be met.

Another problem applies to parents who are financially able to afford treatment but do not provide it. The number of these cases is, quite happily, comparatively small when parents understand the implications of the child's condition and the need for treatment. The school responsibility in such cases depends on the reason for neglect. If it is due to ignorance or to lack of knowledge of existing facilities, the school through the teacher or nurse should consider it has a definite task and a definite responsibility. If, however, there is a willful neglect, the case is one to be decided by the probation department or the juvenile courts.

7. SPECIAL EDUCATION PROGRAMS

Health examinations reveal pupils in need of medical and dental treatment; they also discover pupils whose education programs need adjustment to their physical abilities.

Some of these adjustments will be related to physical education. The examining physician (either private or school) should state whether a pupil may participate in usual physical education activities, whether some modification is needed as well

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as whether or not there is need for special corrective physical education. The foundation of school efforts to improve posture should be medical examinations thorough enough to determine both causes of poor posture and the practicability of improvement through exercise.

Besides pupils needing adjustments in physical education there will be those who need an increased amount of rest or who should be required to attend school only a half of each day. There will also be some who require special seating.

Whereas a member of the school health staff (physician or nurse) may be the one to discover need for an adapted program, the actual adaptation and the help which a pupil may need requires active participation by the teacher. There is need for close cooperation between nurse, special guidance personnel where available, and the teacher of pupils requiring special programs.

It is best to modify a pupil's program while leaving him in his regular class and to enroll a pupil in a special class or school only when this will result in a better educational job than could be done by the regular class, or when progress of pupils in the regular class is seriously hindered by the presence of the handicapped pupil. More than anything else, the handicapped pupil needs to accept his handicap and make the adaptations it requires. This can usually be accomplished most easily when he is associated with normal pupils.

Various types of handicapped pupils cannot satisfactorily cope with the regular school program, including those who are mentally subnormal and those with severe orthopedic deformities. Also those with severe hearing impairment who need lip-reading instruction and

those with severe vision impairment who need sight-conservation measures. Speech correction is needed by those who lisp, stutter or have other speech defects. Pupils with damaged hearts may need a restriction of stair climbing and a limitation of play. Those convalescing from prolonged sickness or operations may need rest periods.

It should be the policy of schools to adjust programs to the various needs and limitations of pupils.

It should be clear that while the school may modify its program for the crippled pupil, the convalescent or the one with poor vision or hearing, this adjustment does not imply responsibility for needed medical care. The school should first see that the pupil is receiving needed treatment and then adjust the school program with the approval of his physician. By such procedure the school can avoid the embarrassing situation of enrolling in a sight-saving class a pupil whose defective vision can be satisfactorily and completely corrected with glasses or providing lip-reading for a pupil whose impaired hearing could be improved or corrected by the removal of dried wax or the removal of tonsils and adenoids.

8. SUPERVISION AND IN-SERVICE TRAINING FOR TEACHERS

Schools should accept responsibility for providing supervision and in-service training for teachers and should place specific responsibility for coordinating all school health activities and for relating these to community health programs in the hands of some person especially qualified in education and in school health work.

In most schools there are many teachers whose preparation did not

cover what is now included in teacher college courses in child development, child growth, and health care of children. If these teachers are to assume their proper functions in the school health program, it is essential that they receive in-service training. This training would deal with such problems as the early detection of signs of disease and disorder, procedures for making daily inspections and observations, approved methods of caring for accidents and other problems directly related to the teacher's part in school health supervision and school health education.

In addition to the in-service training of teachers whose training does not come up to present-day standards, it is necessary that all teachers be kept informed of new developments in the field of health, of new methods for conducting school procedures and of new methods for evaluating the results of school health work.

There are other functions of a supervisory nature for which the schools should provide. All school personnel, namely, janitors, classroom teachers, teachers of home economics, physical education, biologic sciences and social studies as well as the more strictly health trained people—as physicians, nurses, dentists, dental hygienists, dietitians, are concerned with activities of the school health program. To coordinate these groups so that the school health program will be a smoothly functioning unit without friction or duplication requires considerable planning, effort and diplomacy. Besides coordinating the various threads of health interest within the school, there is need of relating school health activities with the health interests of other groups, such as child welfare associations, departments of health, parent-teacher associations, medical and dental associations and various clinics, hospitals and dispensaries.

In small communities, the coordinator both of within school and out of school health activities may be the principal or superintendent; but in large schools and in communities of 20,000 and over, it will be found desirable to designate some one person particularly qualified in the field of school health to perform these functions. These are important school responsibilities and will be met best when made the duty of some particular person.

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(Continued from page 960)

cal expressions of this spirit of confidence and cooperation. Not long ago one ex-patient employed another ex-patient to take care of her baby. Obviously that mother believes that if a patient recovers from mental illness she is healthy and can be unquestionably trusted with the responsibility of caring for a child.

Mr. R., the husband of a patient, out of sympathy for the aims of the association, decided to "take a chance" and employ an ex-patient in his industrial plant. The patient made good, but after a time resigned to take a better position. Still sympathetic and the same time curious to know whether an efficient ex-patient was to be looked upon as a rare specimen or as an average example, Mr. R. employed another former patient, who likewise proved entirely satisfactory. Of course both might be exceptional cases, and he decided to weigh his experience against that of other employers. On investigating the reports submitted to the employment exchange of the association, he found not one that was unfavorable; the majority were definitely commendatory. Mr. R.'s next advertisement for help specified, "former mental patient only."

This was perhaps the first time in history that such a requirement was made of an employee, but it was not to be the last. Recently a man who had his own business broke down and entered the Psychiatric Institute. His wife, who had been a member of Recovery for only three weeks but who had already caught its spirit, asked the employment committee to recommend a discharged patient who could help manage the business during her husband's illness. Adolph was recommended and was given the position. If he makes good, as he gives every promise of doing, he will not only help to maintain the business, but he will also immeasurably strengthen the morale of the man whose place he fills by showing that one can resume one's place in the business world after recovery from mental illness.

"Self-help" is the guiding principle in every activity of this association of recovered patients. Varied opportunities are offered for expression and action on the part of the members. Former patients are invited to contribute to the editorial columns of the magazine "Lost and Found," and advertising space is given free of charge to those in search of employment and to employers offering employment.

At the meetings of the association, former patients are encouraged to speak for themselves. The clearness, confidence, and poise with which they speak should convince any observer that they have completely regained their mental health and are well-integrated individuals. Some of them have spoken over the radio; others have addressed church and club groups.

A basic issue for which they are endeavoring to enlist public support is revision of the present outmoded and barbaric commitment law. The Illinois statute, like that of most other states, is a relic of the days when institutions for the mentally deranged were asylums, places of confinement and not of treatment. The purpose of the law, to be sure, was to protect the patient, to prevent "railroading," or confinement without due process of law. The effect, however, has been to brand the patient with a court record, to stigmatize him as potentially dangerous and antisocial. The proposed new law would eliminate the court from the commitment proceedings and substitute a committee of qualified physicians to pass upon the question of detaining the patient in a hospital.

That Recovery has steadily grown in size and strength is a source of pride to its members, but socially many of them miss the closer personal contacts that were possible when the organization was younger and smaller. The answer, "Why not get together in small groups?" has occurred to some of the recovered patients. The first of these groups, known as the Fortnightly Club, developed out of a sleighing

party in which five young men and five young women, all but one graduates of the Psychiatric Institute, participated. The party, they reported, "was a riot." Hospital experiences were shared, fun was poked at doctors and nurses, at metrazol and insulin, group psychotherapy, and all the rest. "There wasn't a trace of embarrassment when we spoke of mental disease and delusions and convulsions and comas. We just laughed and had loads of fun." The group decided to meet regularly every two weeks and encouraged others to form similar groups. If, as the doctors tell us, laughter is an antidote for mental illness, these young people are in little danger of relapse.

When ex-patients can laugh and joke about their experiences in a psychopathic institution, when a public speaker or entertainer can refer frankly to his mental illness, when a man or woman who has recovered from such an illness can win acceptance in the social and business world without prejudice and without discrimination, a miracle has indeed taken place. But such miracles are not to be had simply for the asking.

The public today looks to the physician for miracles, even as a more primitive world looked to the medicine man or the magician. When we contrast present methods of treating mental ailments with the magic spells that in medieval times were employed to cast out the evil spirits regarded as the cause of such disturbances, we realize how far science has advanced. But what if miracles are performed and we are not ready to receive them? How much can modern science do, if the public attitude is still in many respects medieval? Science may be able to cure a patient suffering from dementia precox, but science cannot prevent or remove the stigma that society fixes upon the patient. Perhaps the greatest miracle of all will be an enlightened public that realizes its responsibilities in making recovery from mental illness complete and permanent.

INJECTIONS INTO THYROID GLAND

The injection of a hardening substance into the thyroid gland is an effective means of reducing symptoms due to its overactivity, Frank M. Postlethwaite, Kansas City, Mo., reports in *The Journal of the Missouri State Medical Association* as a result of his experience with more than 25 patients.

Hyperthyroidism or overactivity of the thyroid gland produces nervousness, loss of weight, a "starey" appearance of the eyes and palpitations of the heart. In explaining the need for a new method of treating this condition, the author says: "The surgical removal of the gland is disabling and incapacitating for long periods, requires the highest surgical skill and hospitalization, carries a financial burden not easily borne by the average family and has an unenviable percentage of failures. The medical care has been slow, indifferent and indirect. Consequently, a method of treatment which may be comparable to surgery, in selected cases, without the surgical expense and hazards is to be desired."

The author therefore tried to inhibit the functioning of the gland by injecting a sclerosing (hardening) agent into it, using a substance called Sylnasol, a 5 per cent solution of the sodium salt of a vegetable oil extracted from the psyllium seed. In every case in which he has had full cooperation of the patient he has obtained definite improvement of symptoms, he says.

"In experienced hands," he declares, "the treatment is a harmless procedure and, in the majority of cases, may be given at the office. It does not produce the shock which accompanies surgical procedures. It is in most cases nonconfining and not disabling. It is practically painless. The only after-effect is a soreness or stiffness of the neck for from four to eight hours.

"If by producing fibrosis (formation of tissues composed of fibers) in the thyroid one reduces its circulation and, therefore, its activity, and lessens its output, it is only reasonable to assume that one, then, must aid the system by supporting endocrine therapy to bring about a proper endocrine balance with the glands which are cooperative with the thyroid; namely, the pituitary and the gonads."

INDEX
to HYGEIA
ADVERTISEMENTS

Allcock Mfg. Co. (Manicare) 1021
American Home Economics 1004
American Institute of Baking 995
American Meat Institute 991
Beauty Counselors, Inc 1017
Beverly Farm, Inc 1038
Blackton (Tre-Zur) 1016
Campana Sales Company 1036
Canoga Farms 1004
Carnation Company 1001
Carter Products, Inc (Arrid) 1019
Child Welfare Guild 1024
Church & Dwight, Inc 1011
Church Grape Juice Co 1006
Clapp, Harold H., Inc ..... 2nd Cover
Coffy's Dates 999
Duke Laboratories, Inc 1016
Fenwal, Inc 1014
Footsure Company, Inc 1021
Funk & Wagnalls Co 1031
General Electric Co 1033
General Foods Corp 1002
General Mills, Inc ..... 3rd Cover
Gilbert, A. C., Company 1028
Greenbrier, The (White Sulphur Springs) 1020
Hansen's, Chris., Laboratory, Inc 994
Hawaiian Pineapple Co., Ltd 997
Hurff, Edgar F 1006
Hynson, Westcott & Dunning ..... Back Cover
Iodine Educational Bureau, Inc 950
Kleinert, I. B., Rubber Co 1013
La Loma Feliz 1038
Lever Brothers Co 1025
Libby, McNeill & Libby 1005
Luzier's, Inc 1015
Maiden Form Brassiere Co 1024
Mangels-Herold Co., Inc 998
Marcelle Hypo-Allergenic Cosmetics 1012
Mead Johnson & Company 945
Metropolitan Life Insurance Co 992
Moran Shoe Company 1026
Nat'l Ass'n of Chewing Gum Mfgrs 1035
National Biscuit Company 1007
Num Specialty Co 1027
Parke, Davis & Co 951
Penick & Ford, Inc 1003
Personal Products Corp 1037
Phillips, Dr. P., Co 1006
Pogue, Mary E., School 1038
Quarrie Corporation (Childcraft) 1023
Sadimin Company 1031
Squibb, E. R., & Sons 947
Sun-Rayed Company 1006
Tampax, Incorporated 1018
Taylor, Frank F., Co ..... 1026 & 1027
Tre-Zur Brassiere Co 1014
Trowbridge Training School 1038
University of Chicago Press 1031
Van Camp Milk Company 1006
Van Camp Sea Food Co 1006
Venus Corporation 1020
Vischer Products Company 999
Walton Laboratories, Inc 949
Wilson Schools 1038
Yore, George J., & Co 1019

Medical News OF THE MONTH

Vitamin B_1 and Efficiency to Prosecute a War

The results of recent investigations of vitamin B_1 deficiency "suggest that efficiency for prosecution of a war can be increased by the simple expedient of providing a very little more of vitamin B_1 than the public is receiving. This subject is also receiving consideration by those responsible for our national defense," *The Journal* of the American Medical Association declares in an editorial.

"Recent reports on vitamin B_1 deficiency bear directly on the importance of a liberal allowance of vitamin B_1 for a people engaged in war. Restriction of the intake of this vitamin in a group of healthy subjects, otherwise adequately fed, provoked, among other signs and symptoms, moodiness, sluggishness, indifference, fear, and mental and physical fatigue. The states of mind and body observed in these subjects were such as would be least desirable in a population facing invasion, when maintenance of stamina, determination and hope may mean defeat or successful resistance."

Closed Method of Treating Compound Fractures

The closed method of treating compound fractures and infected wounds by the application of plaster of paris casts is particularly suitable under the conditions of modern warfare with its numerous civilian casualties from aerial bombardment, *The Journal* of the American Medical Association points out in an editorial.

In contrast to the use of chemicals to kill the bacteria, which was employed during the war of 1914-1918, the closed plaster method is based on the principle of rest for the injured part and on the ability of the body to resist bacterial infection. This principle, introduced after the first World War by Baer of Baltimore and H. Winnett Orr, Lincoln, Neb., was tested by the latter in the use of the closed plaster method in civilian practice. He obtained good results with the method in from 85 to 90 per cent of compound infected fractures.

"The essential feature of the method is the complete immobilization of the soft tissues," the editorial says. "No attempt is made to kill the organisms by external agents. The reliance is placed entirely on the ability of the body to resist bacterial infection.

"The first large scale experiment in the appliance of these principles was made possible in the Spanish war. There, chiefly owing to the enthusiasm of J. J. Trueta, chief surgeon of the General Hospital of Catalonia, the method was adopted in the medical service of the republican army. The total number of cases treated was 20,000. The incidence of gas gangrene and of other infections fell so definitely that foreign surgeons who came to Catalonia at the later stages of the war were led to believe that the soil of Spain contained no anaerobes (micro-organisms which live without air)."

New Information on "Sleeping Sickness"

Chronic epidemic encephalitis, consisting of inflammation of the brain and associated with drowsiness and somnolence, is more popularly known as "sleeping sickness." It is a persisting inflammatory disease instead of being the result of an acute original infection, as has been commonly believed, Richard B. Richter and Eugene F. Traut, Chicago, declare in the *Archives of Neurology and Psychiatry*. Their declaration is based on their findings in a study of the brain of Patricia Macguire, the Oak Park, Ill., encephalitis victim whose case attracted nationwide attention for the five years preceding her death in 1937.

Another conclusion reached by the two men from their investigation is that damage to the posterior (rear) part of the hypothalamus region of the brain is the injury responsible for the production of pathologic (caused by disease) sleep in human beings as well as in experimental animals. The hypothalamus region is situated at the base of the brain. The significance of the finding of the two doctors regarding the chronic phase of the disease is contained in the fact that inflammatory conditions may lend themselves to treatment. Thus a means of treating this disease may eventually be found. At the present time treatment of the condition is limited to the symptoms produced by the disease rather than the disease itself.

Find Finish on Fabrics Caused Outbreaks of Dermatitis

Seemingly separate outbreaks of dermatitis or skin inflammation, reported recently in the United States and Canada, caused by wearing apparel made of different fabrics, have been investigated and found to be due to a certain finish used on these fabrics, Louis Schwartz, Washington, D. C.; Louis W. Spolyar, Frank M. Gastineau, and John E. Dalton, Indianapolis; Adolph B. Loveman, Louisville, Ky.; Marion B. Sulzberger, Ellis P. Cope and Rudolf L. Baer, New York, report in *The Journal* of the American Medical Association.

As a result of the investigation, the eight men say, the finish was withdrawn by its manufacturers for use on wearing apparel. Last March the Office of Dermatoses Investigations of the United States Public Health Service started receiving reports of many cases of dermatitis occurring on persons wearing cotton fabrics and a new synthetic fiber substitute for silk. By the last of July, reports had been received from Canada, Missouri, South Carolina, Indiana, Kentucky, New York, Michigan and New Jersey involving such garments as "shorts," pajamas and hosiery.

"Investigations in Indiana," the authors report, "where the largest number of cases (involving hosiery) were reported, showed seventy-four cases, of which number we actually saw sixty-four. In these cases the dermatitis began from two to twenty-eight days after the patient began wearing the stockings."